

mijin Deployment Guide

Release 1.3 (English)

Techbureau, Corp

Jul 28, 2025

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About

1.1 About mijin Catapult(v.2)

1.1.1 What is mijin Catapult(v.2)?

mijin Catapult(v.2) allows you to build a viable private blockchain with minimal resources.

As a private blockchain product that replaces existing databases, it utilizes multiple cryptographic signature functions and is used in many projects.

Without compromising the atomicity of transactions, mijin's account engine operates as a fully distributed, zero-downtime network that assumes high security, minimizing the need for application development and maintenance.

Tokenize any data or asset with a simple definition and process all transactions as secure, one-time smart contracts, with speeds of thousands of transactions per second.

What is the private blockchain "mijin"?

Platform for easily building a private blockchain environment in the cloud or in your own data center for use within your company.



mijin Catapult(v.2) will offer new features such as aggregate transactions (1,000 transactions

simultaneously with atomicity) and Fully distributed atomic swap technology with guaranteed atomicity through **Multilayer Signature** (3 levels of multisig authentication).

All of these advanced features can now be implemented with a minimum of knowledge and man-hours, thanks to the feedback we have received from our customers over more than five years of practical cases in V1.

The combination of this experience and technology with NEM, a public blockchain that has been in operation for many years, is now being offered for the first time as a commercial blockchain product from Japan on the AWS Marketplace.

The following site also provides a detailed explanation of mijin Catapult(v.2).

mijin Catapult(v.2) Description Page https://mijin.io/product/

1.1.2 Use Cases

mijin Catapult(v.2) can be used effectively in a variety of fields.

Note:

If you would like to know more details, you can obtain actual case studies from the various application fields section of the mijin Site page or by contacting us.



1.1.3 Differences from the public blockchain Symbol

Since mijin Catapult(v.2) uses the same core engine (Catapult) as Symbol, which is launched as a public blockchain, what can be done with Symbol can also be done with mijin Catapult(v.2). This section mainly shows the difference from Symbol.

1		O web at
		Symbol
chain	private blockchain	public blockchain
network name	MIJIN, MIJIN_TEST	MAIN_NET, TEST_NET
Genesis Block Epoch	1560294000s	16158531855
	(Tue 11 Jun 2019 23:00:00 UTC)	(Tue 16 Mar 2021 00:06:25 AM UTC)
Base Currency NAME	cat.currency	symbol.xym
Base Currency ID	Create ID when building mijin Catapult(v.2)	6BED913FA20223F8
Base Currency Issue Volume	8,998,999,998.000000	8,164,233,299.724038
Harvest Currency Name	cat.harvest	symbol.xym(基軸通貨と兼用)
Harvest Currency ID	Create ID when building mijin Catapult(v.2)	6BED913FA20223F8
Harvesting Currency Issue Volume	15,000,000	8,164,233,299.724038(symbol.xym)
block generation in- terval	10~60 秒(構築時にカスタム可能)	30秒
1 ブロックあたりの最 大トランザクション数	6.000	5,000
	10.000	
	20,000	
	50,000	
	100,000	
transaction fee		required
	required	
	なし、(構築時に指定可能)	
Mosaic Rental Fee		あり(50symbol.xym)
	th (50+	
	めり (50Cat.currency) たし (携筋味に均匀能)	
	なし(柟梁吋に拍正り形/	
Namespace Rental		あり(期間によって変動)
Fees		
	あり(期間によって変動)	
	なし(構築時に指定可能)	
votingkey ファイルの 期限	約 54/~3285 日(ノロック生成前隔により異な る)	Approx. 180 days
Maximum number	25、50、100、1000(選択可能)	25
count		
Finalization support	決定的、確率的(構築時に選択可能)	Deterministic

Table 1: mijin vs. symbol

1.2 Comparison with major database products and applications

1.2.1 Comparison with major database products

Item	mijin v.1	mijin Catapult (v.2)	MySQL	Redis	Mongo	Neo4j	Apache Hbase
type	blockchain	blockchain	RDBMS	NoSQL(KV 型)	NoSQL (document type)	NoSQL (graph type)	NoSQL (wide col- umn type)
Overview							
	Data is stored in blocks, DB to be connected like a chain	ditto	Consistency is maintained in tabular form, Easily searchable by query	With a key-value structure High speed access available	Schemaless JSON format, etc. DB that can be stored and operated	The relationship is represented by a graph structure, Fast merging is possible	Each column has a different structure, Fast tabulation is possible
ライセン	Enterprise	Enterprise					Apache 2.0
			GPL / Enterprise	BSD / Enterprise	SSPL / Enterprise	GPL / AGPL / Enterprise	
Release Date	September 2015	June 2019	1995年	2009年	2009年	2007	2010
devel- opment language	Java	C++	C++	С	C++	Java	Java
Sup- ported OS	Linux, Win- dows	Linux, Windows (要 Docker)	Linux, Win- dows	Linux, Win- dows	Linux, Win- dows	Linux, Win- dows	Linux
client	REST API, nem-sdk	REST API, symbol-sdk (Java, TS)	mysql- client, each language library	redis-client, each language library	mongo- client, each language library	REST API, WEB UI each language library	HBase client, RPC- enabled library
advan- tage	Highly tamper- resistant, Easy construction of account assets	Same as above	Powerful query, integrity guaranteed informative	Simple API, Memory- resident and fast	Schemaless, 水平スケー ラブル	horizontally scalable Query support	Column oriented and fast tabulation, ビッグデー タに強い
主な用途	Point manage- ment, audit log	Point man- agement, P2P transactions	Customer Manage- ment	Ses- sion/message relay	Logs, games, surveys	Recom- mendation, relationship analysis	Analytical, statisti- cal, and tabulation applica- tions

Table 2: 各種データベースの比較

1.3 Architecture and Specification Requirements

1.3.1 mijin Catapult(v.2) configuration

The mijin Catapult (v.2) comprises a county of servers, called nodes, that make up a private blockchain network.

The minimum recommended configuration for mijin is two API nodes and three PEER nodes.



1.3.2 PEER node roles and specification requirements

PEER nodes generate blockchain data and provide block consensus functionality. The PEER node alone cannot be accessed by clients; an API node is required.

CPU	Processor around 3.1 GHz (CPU core 2 or higher)
memory	4GB RAM or more
disk	
	root 30GB or more block 500GB or more 3000IOPS or more recommended
OS	Linux running Docker (recommended Ubuntu 20.04 or higher)

Note:

AWS MarketPlace's mijin Catapult(v.2) allows you to select only available specs that are above recommended.

Disk space increases in proportion to the amount of storage on the blockchain.

1.3.3 API node roles and specification requirements

The API node provides an API to write and read blockchain data to mongodb at high speed. There is also blockchain data on the API node, but it is treated as a simple backup with no block generation function.

This blockchain data generation function can also be enabled and can function as a DUAL mode with PEER node functionality.

CPU	Processor around 3.1 GHz (CPU core 2 or higher)
memory	8GB RAM or more
disk	
	root 30GB or more mongo 300GB 3000IOPS or more recommended block 500GB 3000IOPS 以上推奨
OS	Linux running Docker (recommended Ubuntu 20.04 or higher)

Note:

AWS MarketPlace's mijin Catapult(v.2) allows you to select only available specs that are above recommended.

Disk space increases in proportion to the amount of storage on the blockchain.

Deploy

2.1 mijin Catapult(v.2) How to Deploy

2.1.1 How to deploy mijin

There are currently two ways to build mijin Catapult(v.2).

- 1. Deployment using AWS MarketPlace
- 2. Built by Tech Bureau

2.1.1.1 Deployment using AWS MarketPlace

We offer products that make it easy to deploy|mijin| on the Amazon Web Service (AWS) marketplace, one of the largest cloud vendors.

AWS MarketPlace https://aws.amazon.com/marketplace

For more information, see Preparing to Deploy with AWS MarketPlace for more information.

2.1.1.2 Built by Tech Bureau

mijin construction will be performed at Tech Bureau. For more information, please contact us through the contact page of mijin Site.

2.2 AWS MarketPlace

AWS MarketPlace will be an AWS service to source and provision third-party software, services, and data.

This chapter describes mijin Catapult(v.2) deployed in AWS MarketPlace.

2.2.1 Preparing to Deploy with AWS MarketPlace

An Amazon Web Services (AWS) account and knowledge of its operation are required to use mijin Catapult(v.2), which is available on AWS Marketplace.

This chapter will help you understand what you will need to prepare in advance of deployment.

2.2.1.1 Prepare AWS account

Amazon Web Services (AWS) will be the platform for creating infrastructure technologies such as computing, storage, and databases in the cloud.

To perform the operation, you will need to create an AWS account, so please refer to the following site and create an AWS account.

https://aws.amazon.com/jp/register-flow/

Warning:

mijin Catapult(v.2), it is recommended to create and deploy an administrative IAM account instead of the root user.

To create an administrative IAM user, see below.

https:

//docs.aws.amazon.com/ja_jp/IAM/latest/UserGuide/getting-started_create-admin-group.html If you want to know more about root users, please refer to the following

https://docs.aws.amazon.com/ja_jp/IAM/latest/UserGuide/id_root-user.html

2.2.1.2 Knowledge of AWS

The main AWS services used by mijin are

The following will be automatically created when deploying mijin Catapult(v.2) provided by Marketplace.

Amazon VPC

Create a virtual network. mijin Catapult(v.2) will be placed in a network on this VPC. For more information, check the following documents https://docs.aws.amazon.com/ja_jp/vpc/latest/userguide/what-is-amazon-vpc.html

Amazon EC2

Create a computing machine. mijin Catapult(v.2) nodes (servers) are created. For more information, check the following documents https://docs.aws.amazon.com/ja_jp/AWSEC2/latest/UserGuide/concepts.html

Amazon EBS

Create storage on the computing machine. mijin Catapult(v.2) places blockchain and mongo data on EBS. For more information, check the following documents https://docs.aws.amazon.com/ja_jp/AWSEC2/latest/UserGuide/AmazonEBS.html

• Elastic Load Balancing

Create a load balancer to relay to the computing machine. mijin Catapult(v.2) ensures redundancy by routing access to API nodes through a load balancer.

For more information, check the following documents https://docs.aws.amazon.com/ja_jp/elasticloadbalancing/latest/userguide/ what-is-load-balancing.html

Amazon Route 53

Create a DNS service to be used for name resolution of computing machines. mijin Catapult(v.2) connects each node by name resolution using DNS. For more information, check the following documents

https://docs.aws.amazon.com/ja_jp/Route53/latest/DeveloperGuide/Welcome.html

• AWS IAM

Specify users and groups that have access to AWS services and resources, such as between AWS services, and

Centralized management of fine-grained access permissions.

mijin Catapult(v.2) When deploying, the AWS account must have IAM privileges. (Explained in Account authorization to deploy to AWS)

mijin Catapult(v.2) to resources created after deployment.

- Authority from EC2 instance to Secrets Manager
- SSM login privileges from EC2 instances

to the profile of the EC2 instance that is the API,PEER node.

For EC2 IAM roles, see below.

https:

//docs.aws.amazon.com/ja_jp/AWSEC2/latest/UserGuide/iam-roles-for-amazon-ec2.html

For more information on SSM login, please see below. https://docs.aws.amazon.com/ja_jp/systems-manager/latest/userguide/ session-manager-getting-started-instance-profile.html

AWS Systems Manager Parameter Store

Use as secure tiered storage for configuration data management and confidentiality control. mijin Catapult(v.2) stores configuration information and common settings for each node. By storing them in the parameter store, they can be restored in the event of a failure. For more information on the parameter store, see https://docs.aws.amazon.com/ja_jp/systems-manager/latest/userguide/ systems-manager-parameter-store.html

AWS CloudFormation

Provides orchestration to automatically build AWS services. AWS Marketplace uses AWS CloudFormation to build mijin Catapult(v.2) on AWS. For more information, check the following documents https://docs.aws.amazon.com/ja_jp/AWSCloudFormation/latest/UserGuide/Welcome.html

2.2.1.3 Account authorization to deploy to AWS

To deploy mijin Catapult(v.2) on AWS, you need to grant privileges to the account you prepared with Prepare AWS account.

Permissions to create Knowledge of AWS AWS resources and to subscribe to use the mijin Catapult(v.2) images deployed in Marketplace are required.

An IAM policy focused only on AWS Marketplace and Deploy permissions is as follows Refer to the following to create an IAM policy and grant it to the IAM account to be used for deployment.

https://docs.aws.amazon.com/ja_jp/apigateway/latest/developerguide/ api-gateway-create-and-attach-iam-policy.html

```
{
    "Version": "2012-10-17",
    "Statement": [
        {
            "Sid": "VisualEditor0",
            "Effect": "Allow",
            "Action": "iam:PassRole",
            "Resource": "*",
            "Condition": {
                "StringEquals": {
                    "iam:PassedToService": [
                        "lambda.amazonaws.com",
                        "ec2.amazonaws.com"
                    ]
                }
            }
        },
            "Sid": "VisualEditor1",
            "Effect": "Allow",
            "Action": [
                "iam:*RolePolicy",
                "route53:*HostedZone",
                "iam:List*",
                "aws-marketplace:*",
                "elasticloadbalancing:RegisterTargets",
                "ec2:*RouteTable*",
                "iam:CreateRole",
                "elasticloadbalancing:DeleteLoadBalancer",
                "ec2:DescribeInternetGateways",
                "elasticloadbalancing:DescribeLoadBalancers",
                "ec2:*KeyPairs",
                "lambda:GetFunction*",
                "ec2:DescribeAccountAttributes",
                "elasticloadbalancing:ModifyTargetGroupAttributes",
```

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2.2.1.4 mijin Catapult(v.2) license in AWS

AWS Marketplace licenses for the mijin Catapult(v.2) product version are made available by agreeing to the EULA for mijin Catapult(v.2) in Marketplace.

For the EULA, please refer to the following https://d7umqicpi7263.cloudfront.net/eula/product/d6b2653b-ee61-4a62-8fef-a9fa7930892e/ c255cb3f-6c72-412a-a899-42fa3f83fd71.pdf

The license fee for the AWS Marketplace version of mijin Catapult(v.2) will be added to your AWS usage fee and charged on a pay-as-you-go **per-hour** basis.

It does not matter what the specifications or number of CPU cores are, it is per node.

item	Value
mijin license fee	\$0.40 per hour

Note:

AWS MarketPlace Trial Version is not subject to the mijin Catapult(v.2) license fee. AWS MarketPlace Enterprise x86_64 Version has a minimum of 5 node activations, so the approximate license cost per month is calculated as follows

Hourly \$0.4/1h * 5(units) = \$2.0/1h by the day \$2.0/1h * 24(h) = \$48.0/1d In units of 1 month (30 days) \$48/1d * 30(h) = \$1,440.0/1m

2.2.1.5 AWS Usage Fees

In addition to the mijin license fee, AWS resource usage fees are

- Amazon EC2
- Amazon EBS
- Elastic Load Balancing
- Amazon Route53
- Amazon VPC(Nat Gateway)
- parameter store

The cost of the pay-as-you-go service will be charged on a pay-as-you-go basis. The fee also varies depending on the amount of data transferred and other factors. For information on AWS usage fees, please refer to the following

https://aws.amazon.com/jp/pricing/

Note:

The configuration of mijin Catapult(v.2) offered on AWS Marketplace changes depending on the parameters you specify, and the cost will vary.

Note that the following will vary, depending primarily on the parameter specification.

- instance type
- Number of nodes (instances)
- Whether Elastic Load Balancing is required or not
- Whether VPC is created or not
- Block size and IOPS of EBS

AWS Marketplace Product Description

The products currently offered by Tech Bureau are as follows Each product has its own product page on AWS Marketplace.

- Trial Version (AWS MarketPlace Trial Version)
- Product version (AWS MarketPlace Enterprise x86_64 Version)
- Product version (AWS MarketPlace Enterprise arm64 Version)

The mijin Catapult(v.2) offered in the AWS Marketplace does not require any complex operations to build.

Depending on the parameters chosen at deployment time, it automatically builds an environment that includes a network and builds a secure and robust blockchain network from an image that includes mijin.

The contents of the environment to be created are explained on each deployment method page.

2.2.1.6 Trial Version

The trial version is available free of charge as a simple to start mijin Catapult(v.2).

There is no redundancy and it will be a single operation mijin Catapult(v.2).

Compared to the commercial version, it is a single-AZ arrangement with no customizability, but it is suitable for a trial or development environment.



Table 1: Free Trial E	Environment Overview
-----------------------	----------------------

item	Description
Marketplace Product Page	AWS MarketPlace Trial Version
デプロイ方法	
	Build a new VPC with mijin Catapult(v 2)
	Deploying a trial version of mijin を参照
Deployment time	約15分
Support	
	其木サポートな
	ー AWS に関する問題は以下で問い合わせ:
	https://aws.amazon.com/jp/premiumsupport/
available region	
	Available in 21 regions worldwide
	ap-northeast-1, us-west-1, us-west-2, us-east-1,
	us-east-2, eu-north-1, eu-west-1, eu-west-2,
	eu-west-3, eu-south-1, af-south-1, ap-south-1,
	ap-east-1, ap-northeast-2, ap-northeast-3,
	ap-southeast-1, ap-southeast-2, sa-east-1,
	ca-central-1, eu-central-1, me-south-1
Number of nodes	
placement availability zone	シングル AZ(1つ)
load balancer	None

2.2.1.7 Production version

The full version is customizable for enterprise production, with fault-tolerant and high-availability configurations as standard, and secure API access can be easily configured.

In addition, you can set up a new or existing environment with mijin Catapult(v.2) and apply it to various environments, such as load balancing using load balancers.



item	Description
Marketplace Product Page	
	x86_64版:AWS MarketPlace Enterprise x86_64 Version
	arm64版:AWS MarketPlace Enterprise arm64 Version
既存環境へのデプロイ方法	
	すでに既存サービスがあり。
	- 「Filler Provident of the second of the s
	Deploy mijin on an existing VPC を参照
新規環境へのデプロイ方法	
	mijin Catapult(v.2) Technical Inquiries
	初めて AWS を使う場合は
	Create a new VPC and deploy mijin を参照
Deployment time	約 30 分
Support	
	デプロイ関連のお問い合わせは
	https://mijin.io/aws_contact/
	※ mijin Catapult(v.2) に関する技術的な質問は
	Paid support (ticket)
	For AWS related information go to AWS Support Case:
	https://aws.amazon.com/in/premiumsupport/
available region	
_	Available in 21 regions worldwide
	ap-northeast-1, us-west-2, us-east-1.
	us-east-2, eu-north-1, eu-west-1, eu-west-2,
	eu-west-3, eu-south-1, af-south-1, ap-south-1,
	ap-east-1, ap-northeast-2, ap-northeast-3,
	ap-southeast-1, ap-southeast-2, sa-east-1,
	ca-central-1, eu-central-1, me-south-1
Number of nodes	2 ADI nodos 2 to 7 DEED nodos (E to 0 total)
Number of nodes 配置 ΔZ (アベイラビリティゾ	2 AFT HOURS, 5 10 / FEEK HOURS (5 10 9 101dl)
$ = \frac{1}{100} $	
	Multi AZ (2)
	× Single AZ cannot be set.
load balancer	

Table 2.	AWS	デプロ	1イ情報
	7.00	ノント	4 I IFJ + K

2.2.1.8 About Paid Support

Support for deploying mijin Catapult(v.2) will be provided free of charge, but if you need technical inquiries about mijin Catapult(v.2), you can purchase paid support (ticket-based) from Tech Bureau to assist you.

Please contact us below to inquire about purchasing support.

https://mijin.io/aws_contact/

Support Contents	
	mijin Catapult(v.2) Technical Inquiries Node failure support (during business hours) Version upgrade notification and procedure release Infrastructure support in an AWS environment. etc

2.2.1.9 Limitations due to AWS service quotas

AWS Marketplace mijin Catapult(v.2) uses the following AWS services, so if you use an AWS account that already has an environment built, there is a possibility of startup failure due to service quotas. For service quotas, see the explanation below.

https://docs.aws.amazon.com/ja_jp/general/latest/gr/aws_service_limits.html

Below is a description of the number of services created by mijin Catapult(v.2).

AWS Services	Content related to restrictions
Amazon VPC	
	VPC: 1
	サブネット: 4(トライアルは 1)
	インターネットゲートウェイ: 1
	NAT Gateway: 2(トライアルは 0)
	ルートテーブル:1
	セキュリティグループ:5
	参考: https://docs.aws.amazon.com/ja_jp/vpc/latest/userguide/amazon-vpc-limits.html
Amazon EC2	
	EC2 インスタンス: 5~9(トライアルは 1)
	インスタンスタイプによりクォータ変動あり
	EC2 制限: https://docs.aws.amazon.com/ja_jp/general/latest/gr/ec2-service.html オンデマンド制限: https://docs.aws.amazon.com/ja_in/AWSEC2/latest/UserGuide/
	ec2-on-demand-instances.html#ec2-on-demand-instances-limits
	EBS: 630GB~
	https://docs.aws.amazon.com/ja_jp/general/latest/gr/ebs-service.html
Elastic Load Balancing	
	Network Load Balancer: 1(有効時)
	https://docs.aws.amazon.com/ja_jp/elasticloadbalancing/latest/network/
	load-balancer-limits.html
Amazon Route53	
	Internal $y - y$: 1
	https://docs.aws.amazon.com/ja_jp/Route53/tatest/DeveloperGuide/DNSLIMitations.html
AWS IAM	
	$IAM \Box = II \cdot 2 (F = A T II I + 1)$
	$IAM \pi^{-1} / V. 2 (F > F > V V R I)$
	https://docs.aws.amazon.com/ja_jp/IAM/latest/UserGuide/reference_iam-quotas.html
Systems Manager Parameter	
Store	パラメーター数: 48~(トライアルは 15)
	https://docs.aws.amazon.com/ja_jp/general/latest/gr/ssm.html
	, , , , , , , , , , , , , , , , , , ,

2.2.2 Create a new VPC and deploy mijin

This chapter shows how to deploy mijin Catapult(v.2) on a new network (VPC). In the commercial version, you can flexibly build a network that fits your environment by changing parameters.

2.2.2.1 List of services to be built on AWS by deployment

- Amazon EC2 (APINode x 2 PEERNode x 3~)
- Amazon EBS
- Elastic Load Balancing
- Amazon Route53
- Amazon VPC(Nat Gateway)
- parameter store

Note:

Elastic Load Balancing may not be created in some cases, depending on the parameter settings specified during deployment.

2.2.2.2 View Network

In the commercial version, it is possible to build a network that fits your environment by changing parameters. An example pattern is shown below.

No	load balancer	API node placement	PEER node placement	figure
1	** Yes / Open NW** UseLoadBalancer: Yes LoadBalancerType: external	公開 NW ApiPlacementNetwork: ^{Public}	Private NW	
2	あり/非公開NW UseLoadBalancer: Yes LoadBalancerType: internal	Private NW ApiPlacementNetwork: Private	Private NW	
3	No UseLoadBalancer: No LoadBalancerType は設定無 効	公開 NW ApiPlacementNetwork: Public	Private NW	
4	No UseLoadBalancer: № LoadBalancerType は設定無 効	Private NW ApiPlacementNetwork: Private	Private NW	

Table 4: ロード	バランサーとノ	ード配置パターン
--------------	---------	----------

Note:

The commercial version cannot be configured with a single AZ to achieve high availability, but only with multiple AZs.

Note that you will always need two public networks and two private networks.

Deployment is single region, but can be deployed in each of the world's 20 regions.

2.2.2.3 Step.1

\bigcirc	mijin Catapult (v.2) Enterprise	Continue to Subscribe
	By: Tech Bureau Holdings Corp. C Latest Version: 1.0.0.0	Save to List
	"mijin allows you to build a viable private blockchain with minimal resources"	Typical Total Price
	Linux/Unix	\$0.483/hr
		Total pricing per instance for services hosted on t3.large in US East (N. Virginia). View Details

you need to subscribe to use the AMI of mijin Catapult Enterprise. Please press the button in the red frame.

2.2.2.4 Step.2

mijin Catapult (v.2) Enterprise	Continu
····j··· ==============================	You must fi

< Product Detail Subscribe

Subscribe to this software

To create a subscription, review the pricing information and accept the terms for this software.

Terms and Conditions

Tech Bureau Holdings Corp. Offer

By subscribing to this software, you agree to the pricing terms and the seller's End User License Agreement (EULA) C. You also agree and acknowledge that AWS may share information about this transaction (including your payment terms) with the respective seller, reseller or underlying provider, as applicable, in accordance with the <u>AWS Privacy</u> <u>Notice</u> C. Your use of AWS services is subject to the <u>AWS Customer Agreement</u> or other agreement with AWS governing your use of such services.		
The following table shows pricing information for the listed software components. You're charged separately for your use of each component.		
mijin Catapult (v.2) Enterprise	Additional taxes or fees may apply.	
	mijin Catapult (v.2) Enterprise EC2 Instance Type Software/hr	

mijin Catapult Enterprise AMI, please approve its use.

2.2.2.5 Step.3

mijin Ca	tapult (v.2) Ente	erprise		Continue to Configuration
< Product Detail <u>Subscribe</u>				
Subscribe to this s	software			
You're subscribed to this software. configure your software.	. Please see the terms ar	nd pricing details below	or click the button above to	
Terms and Conditions				
Tech Bureau Holdings Corp. O	ffer			
You have subscribed to this softwa and the seller's End User License A transaction (including your payme applicable, in accordance with the Customer Agreement ^C or other a	are and agreed that your agreement (EULA) C [*] . Yo nt terms) with the respe AWS Privacy Notice C [*] . greement with AWS gov	r use of this software is s u agreed that AWS may ective seller, reseller or u Your use of AWS service: rerning your use of such	ubject to the pricing terms share information about this nderlying provider, as s remains subject to the AWS services.	
Product	Effective date	Expiration date	Action	

To start from Config, click on the text in the red box.

2.2.2.6 Step.4

mijin Catapult (v.2) Enterprise	(4) Continue to Launch
Product Detail Subscribe Configure Configure the Software Choose a fulfillment option below to select how you wish to deploy the software, then enter the information required to configure the deployment. Peliverv Method mijin Catapult Enterprise on New VPC CFT 1.0.0.0 (May 27, 2021) Winder Hind Herborn 1.0.0.0 (May 27, 2021) Winder Hind Herborn US East (N. Virginia) Software Version US East (N. Virginia) Subscribe Lean more Product Code: or WaveLength infrastructure deployment may alter your final pricing. Product Code: cpkwiq119jldq4fuzr857563y Release notes (updated May 27, 2021)	Pricing information This is an estimate of typical software and infrastructure costs based on your configuration. Your actual charges for each statement period may differ from this estimate. Software Pricing mijin Catapult (v.2) Enterprise running on t3.large

Select the template to be used in the red frame in (1). In this example, 'mijin Catapult Enterprise on New VPC CFT'is selected to create a new network.

Specify the version of mijin in the red frame in 2

Specify the region where mijin will be deployed

Click 'Continue to Launch'in the red frame of ④.

2.2.2.7 Step.5

mijin	Catapult (v.2) Enterprise
< Product Detail Subscribe Confi	gure <u>Launch</u>
Launch this soft	ware
Review your configuration and	choose how you wish to launch the software.
Configuration Details	
Fulfillment Option	mijin Catapult Enterprise on New VPC CFT mijin Catapult (v.2) Enterprise running on t3.large
Software Version	1.0.0.0
Region	US East (N. Virginia)
Usage Instructions	
Choose Action Launch CloudFormation	Choose this action to launch your configuration through the AWS CloudFormation console.
	2 Launch

In the red frame in (1), specify the service for which mijin is to be built. In this case, 'Launch CloudFormation'is specified. Click 'Launch'in the red frame in ②.

2.2.2.8 Step.6

Specify template	Create stack			
Step 2 Specify stack details	Prerequisite - Prepare template			
Step 3	Prepare template Every stack is based on a template. A template is a JSON or YAML file that contains configuration information about the AWS resources you want to include in the stack.			
Configure stack options	Template is ready Use a sample template Create template in Designer			
Step 4 Review				
	Specify template A template is a JSON or YAML file that describes your stack's resources and properties.			
	Template source Selecting a template generates an Amazon 53 URL where it will be stored.			
	Amazon S3 URL Upload a template file			
	Amazon S3 URL			
	https://s3-ap-northeast-1.amazonaws.com/cf-templates-1301ubacqb2jo-ap-northeast-1/2020331YN8-template1b103xcr6zch			
	Amazon S3 template URL			
	S3 URL: https://s3-ap-northeast-1.amazonaws.com/cf-templates-1301ubacqb2jo-ap-northeast-1/2020331YN8-template1b10 View in 3xcr6zch			

Without editing anything in particular, press 'Next'in the red frame.

2.2.2.9 Step.7

C Search	(Option+S) O Alia Paulic (Trayo) +	
E CloudFormation > Stacks	> Create stack	0 0
Step 1		
Create stack	Specify stack details	
Specify stack details	Provide a stack name	
Step 3	Stack name	
Step 4	Enter a stock name Stack name must contain only lotters (a-z, A-Z), numbers (0-3), and hyphens (-) and start with a letter. Max 128 characters. Character count: 0/128.	
 Review and create 		
	Parameters	
	varameters are defined in your template and allow you to input custom values when you create or update a stack.	
	ServiceName	
	Plase input Service Name. MUIN-CATAPULT	
	AvailabilityZone1	
	Rease input AvailabilityZone1 Select AWS-FF2-dwillohilityZone1	
	WalabilityZonez Prese input AvalabilityZone2	
	Select AWS:EC2::AveilabilityZone:Name	
	Security Group Configuration	
	PublicLocationIP Please input range of IP addresses that can access mijin rest. Do not use 0.0.0.0/0 If CataputEffectiveFee is No.	
	() Enter String	
	Node Configuration	
	Plase Input Default Unix User	
	Ubuntu	
	KeyName Name of an existing EC2 KeyPair to enable SSH access to the api and peer instances	
	Select AWS:EC2::KeyPair:KeyName	•
	API Node Configuration	
	ApiPlacementNetwork Plause select network	
	Public	•
	AplinstanceType	
	(9) t4glarge	•
	ApiRootVolumeSize	
	30 NOT VOLTING 344	•
	ApiBlockVolumeSize	
	API Block Volume Size(GB) 500	
	API Nock Volume lops	
		_ _
	ApiMongoVolumeSize Alf Mongo Volume Size(GI)	
	300	
	AplMongoVolumelops Reot Volume lops	
	(4) (3000	•
	PEER Node Configuration	
	PeerNumberOfUnits Please input Number of Peer EC2 instances Unit/Net Autoscilling)	
	(15) (3	•
	PeerinstanceType	
	14 decimation of the second se	•
	PeerRootVolumeSize	
	PEER Root Volume Size(GR) 30	

10	Peerslock Volume Size PEER Block Volume Size(GB)
18)	500
	PeerBlockVolumetops
19	3000
	milin Configuration
	CatapultVersion
20	Please select mijin Cataputi Version v10038
	CatapultShareMode
21	Please select mijn Catapult Share Mode
U	mu
	CatapultNetwork Please select mijn Catapult Network Identifier
20	mjin
_	CatapultBlockGenerationTargetTime Place select miin Cataput Block Generation Target Time
23)	155
-	CatapultEffectiveFee
24)	Please select mijn Catapult Effective Fee No
~	MaxforlandAzount
)	Please select Max Cosigned Account per Account
IJ	25
	FinalizationType Please select mijin Catapult Finalization Type
26)	Deterministic
	MaxTransactionperBlock
27)	6000
	RestThrottring
28	Please select Rest Rete limit. 30tos
	(
20	Please machine unconfirmed transactions cache.
IJ	Smail
	loadbalancer Configuration
20	UseLoadsalancer Do you use a load balancer(network load balancer)?
<u>30</u>	Yes
	LoadBalancerType If a load balancer is enabled, specifies the load balancer type
31)	external
	ImageId This is the alias of the Marketplace AMI that will be deployed as part of this stack. Ensure this parameter is set to the following value: /sws/service/marketplace/prod-
32)	ustqtwosgibhw/1.0.3.8. //aws/service/marketplace/prod-ustqtwosgsbhw/1.0.3.8
-	MPS3BucketName
	This is the name of the Amazon S3 bucket containing the nested templates that will be deployed as part of this stack. Ensure this parameter is set to the following value: awsmp-cf 9923823803611708727387563.
33)	awsmp-cft-992382380361-1708727387563
	MPS3BucketRegion This is the AWS Barrier of the hurlest containing the nested terminates that will be devined as part of this stack. Focuse this parameter is not to the following use as to the
34)	use and the second seco
	MPS3KeyPrefix
_	This is the prefix of the nested templates in the Amazon S3 bucket that will be deployed as part of this stack. Ensure this parameter is set to the following value: Oecd725b-75b3-4 9808-553ebc25b208/.
	0ecd725b-75b3-477c-98a8-553ebe25b208/
35	
35	mijinStackAlreadyExist mijinStackJarady.edd1f sst ?bo/, create Macro
35) 36)	miji/StackAreadyStat miji StackAreadyStat No

Enter parameters.

......

Table 5: mijin デプロイ用パラメータ一覧(簡易版)

INO	N7X-X	Description	Recommended value
1	Stack Name	Name of this stack	•
2	Service Name	全リソースの冠名として利用されるサービス名	•
3	Availability Zone1	Availability zone to be used (Multi-AZ configuration)	•
4	Availability Zone2	Specify an AZ different from AZ1 (Multi-AZ configuration)	•
5	Public Location IP	Allowed IP address for API connection (/24, etc. is also acceptable)	例: XX.XX.XX.XX/32
6	Default UnixUser	Standard Unix user for EC2	ubuntu
1	KeyName	Key name for EC2 SSH connection	•
8	ApiPlacementNetwork	Network placement location of API node	Public
9	ApiInstanceType	Instance type of API node	c5n.2xlarge 以上
10	ApiRootVolumeSize	Root disk space for API node (used for Docker, etc.)	30GB or more
1	ApiBlockVolumeSize	Disk space for mijin block data storage	500GB or more
(12)	ApiBlockVolumeIops	IOPS settings for the above disks	3000 以上
(13)	ApiMongoVolumeSize	Disk space for mongo data storage	300GB or more

continues on next page

No	パラメータ	Description	Recommended value
(14)	ApiMongoVolumeIops	IOPS settings for mongo disks	3000 以上
(15)	PeerNumberOfUnits	Number of PEER nodes	3
16	PeerInstanceType	Instance type of PEER node	c5n.xlarge 以上
(17)	PeerRootVolumeSize	Root disk space of PEER node	30GB or more
(18)	PeerBlockVolumeSize	Disk for block data in PEER node	500GB or more
19	PeerBlockVolumeIops	IOPS settings for the above disks	3000 以上
20	CatapultVersion	mijinのバージョン	v10038
21)	CatapultShareMode	Setting the save method (example: SSM)	ssm
22	CatapultNetwork	network name	mijin
23	BlockGenerationTargetTime	block generation interval	15s
24)	EffectiveFee	Commission setting (with/without)	No
25	MaxCosignedAccount	Maximum number of accounts that can cosign	25
26	FinalizationType	finalization system	Deterministic
27)	MaxTransactionperBlock	Maximum number of transactions (1 block)	6000
28	RestThrottling	API connection limit	30tps
29	UnconfirmCacheSize	Unauthorized transaction cache size	•
30	UseLoadBalancer	Whether NLB is used or not	Yes
31)	LoadBalancerType	ロードバランサー種別	External
32	ImageId	ID of AMI for management (cannot be changed)	Unchangeable
33	MPS3BucketName	S3 bucket name (cannot be changed)	Unchangeable
34)	MPS3BucketRegion	S3 Region (cannot be changed)	Unchangeable
35	MPS3KeyPrefix	S3 prefix (cannot be changed)	Unchangeable
36	mijinStackAlreadyExist	Existing stack or not	No

Table 5 – continued from previous page

Press 'Next'after completing the parameter entry.

2.2.2.10 Step.8

	aws Services ~	Resource Groups 🗸 🔭	¢	Tokyo 👻 Support 👻
=	CloudFormation > Stack	s > Create stack		
	Step 1 Specify template	Configure stack opt	ions	
	Step 2 Specify stack details	Tags You can specify tags (key-value pairs) to ag	oply to resources in your stack. You can add up to 50 unique tags fo	or each stack. Learn more 🔀
	Step 3 Configure stack options	Key	Value	Re
	Step 4 Review			m o v e
		Add tag		
		Permissions Choose an IAM role to explicitly define hov uses permissions based on your user crede	v CloudFormation can create, modify, or delete resources in the sta titals. Learn more 🖸	ck. If you don't choose a role, CloudFormation
		IAM role - optional Choose the IAM role for CloudFormation to IAM role na… ▼ Sample-role	o use for all operations performed on the stack. name	▼ Remove
		Advanced options	stack, like notification options and a stack policy. Learn n	nore 🖸
		Stack policy Defines the resources that you want to	protect from unintentional updates during a stack update.	
		Rollback configuration Specify alarms for CloudFormation to a back. Learn more 2	nonitor when creating and updating the stack. If the operation bre	aches an alarm threshold, CloudFormation rolls it
		Notification options		
		Stack creation options		
				Cancel Previous Next
	Feedback 🔇 English (US)		© 2008 - 2020, Amazon Web Services, Inc. or its affiliates.	All rights reserved. Privacy Policy Terms of Use

Without editing anything in particular, press 'Next'in the red frame.

2.2.2.11 Step.9

t .	Review MUIN-CATAPULT1			
	Step 1: Specify template		681	
Py stark details	Template			
l Igure siash splices.	Template URL			
	https://wijiv-sataputi-sh-tangtata-test.ch-ap-sorthaash-Lamaporana.com/prod	ali minpite-meso, 'mponauli yani		
larine .	Toth Brodytton mije Catapali Britegene with multiple subretik VPC			
	talinate call not exhibite			
	Step 2: Specify stock details		Date	
	Parameters (31)			
	Q. Sourd parameters		*	
		- Value		
	Apited Volume in a			
	Apirotacoligie	thep		
	Japhingsitelemings			
	ApHenpiteLevelier	-		
	ApPlasmentheterst	Patra III		
	AvailabilityCover	ap-northeast fic		
	Availability/Core2	sp-northeast-to		
	GrapublickGenerationTargetTime	*		
	Categoritilities straffee	No.		
	Catagolithow Hode			
	Catagodifferences	+10000		
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	Reductorfype	Probabilizati		
	Kayferre Loaffelener Tore	Non-econe-tr-		
	ReColpetition			
	Refunctionpellect	20100		
	Peer Biodrinkamings.			
	PeerBod/Information	100		
	Pervatance services	tatospi		
	ParipotiniumGas			
	Publick.mationP			
	Industry	200		
	la violane	HUR-CASE/ULT		
	Unconference helice	Hedun		
	nad development of the second s	10		
	Step 3: Carifigure stack options		0.01	
	Tegs (0)			
	Q, local-top			
	500 a 10			
	Bi taji Trav av na kapulatival	for this stank		
	Permissions			
	To previous			
	There is no kild role amandato	d with this stack		
	and sold in the second s			
	Busic provy			
	Re start price	, 		
	Rollback configuration			
	Residuring time			
	-			
	Couldfuith dam ANN			
	Netification options			
	No solification op	tions .		
	These are no multification op	tions defined		
	Stack creation options			
	Reliant on Inform			
	Ended			
	-			
	Terminalian protection Disabled			
	> Suid-overallek			
	Capabilities			
		0		
	The Pollowing hasourcable require capabilities: DMMS: thoughor studios: Studios			
	The following resourced inquire capacity and Acceptation (ARC: Courter number): Tool Tool Tool Tool Tool Tool Tool Too	A that you want to analy wait of these resources a A that the castam sames are arriage within your M	nithei deptere Ni	
G	The Problem processing requires (scattering) and the processing requires the processing requires a state of the proces	h that you associ is analo wath with these encourses a A that the californ statest are unappe within your N iny California (1971) (1870), (18764), Owak the works)	edithat Beylane RI	
đ	The fifthering second in space (applied to the space (applied to the space)) The fifthering second space (applied to the space) (applied to the space) The space (applied to the space) (applied to the space) The space (applied to the space) (applied to the space) The space (applied to t	I that you want to prease waived these resources a A that the custom serves are unique within your IS iny CalMARLEY, ARTO, JOHAO, Owek the sepakal and the sepakal	ndithai ilinythava 1911 Mas of thava	

Check the two items in the red frame in \mathbb{O} .

Click 'Create Stack'in the red frame in 2. If there are no errors, creation will begin.
2.2.2.12 Step.10

aws	Services ▼				
=	CloudFormation > Stacks > MIJIN-CATAPULT-PRE1				
	Stacks (4) C	MIJIN-CATAPULT-PRE1			
	Q MIJIN-CATAPULT-PRE1 X	Stack info Events Resources Outputs	Parameters Template Change sets		
	Active v View nested < 1 >				
	NESTED MIJIN-CATAPULT-PRE1-vpcNestStack-15SKKPLYM	Events (1) Q. Search events			
	2020-11-26 17:48:44 UTC+0900 CREATE_IN_PROGRESS	Timestamp		Status	Status reason
	NESTED MUIN-CATAPULT-PRE1-iamNestStack-1QNT328H GOQWU 2020-11-28 17-88:44 UTC-0900 G CREATE_IN_PROGRESS	2020-11-26 17:48:36 UTC+0900	MUIN-CATAPULT-PRE1	CREATE_IN_PROGRESS	User Initiated
	NESTED MUIN-CATAPULT-PRE1-macroNestStack-OE4HZ2F 9UWYT 2020-11-26 17:48:43 UTC-0900 © CBRATE, JM_PHOGRESS				
	MUIN-CATAPULT-PRE1 2020-11-26 17.48:36 UTC-0900 () CREATE_IN_PROGRESS				

Confirm that Stack has started and is in 'CREATE_IN_PROGRESS'state. This state will take approximately 20~30 minutes.

2.2.2.13 Step.11

⊡ Stacks (6) C	MIJIN-CATAPULT1	Delete Update Stack act	ions 🔻 Create stack 🔻
Q MIJIN-CATAPULT1 X	Stack info Events Resources Outputs Parameters	Template Change sets	
Active V < 1 >	Events (17)		C
NESTED MIJIN-CATAPULT1-loadBalancerNestStack -1HCA87RNUNK9Q	Q. Search events		٢
2021-04-30 13:42:04 UTC+0900 CREATE_COMPLETE	Timestamp v Logical ID	Status	Status reason
NESTED MUIN-CATAPULT1-miiinNestStack-16T197	2021-04-30 13:45:40 UTC+0900 MIJIN-CATAPULT1	⊘ CREATE_COMPLETE	
12223GK	2021-04-30 13:45:37 UTC+0900 loadBalancerNestStack	⊘ CREATE_COMPLETE	-
CREATE_COMPLETE	2021-04-30 13:42:05 UTC+0900 loadBalancerNestStack	CREATE_IN_PROGRESS	Resource creation Initiated
NESTED MIJIN-CATAPULT1-macroNestStack-TFT74	2021-04-30 13:42:04 UTC+0900 loadBalancerNestStack	CREATE_IN_PROGRESS	-
GMT7QPN 2021-04-30 13:22:32 UTC+0900	2021-04-30 13:41:59 UTC+0900 mijinNestStack	⊘ CREATE_COMPLETE	
CREATE_COMPLETE	2021-04-30 13:25:41 UTC+0900 mijinNestStack	CREATE_IN_PROGRESS	Resource creation Initiated
NESTED MIJIN-CATAPULT1-vpcNestStack-GGV80H	2021-04-30 13:25:40 UTC+0900 mijinNestStack	G CREATE_IN_PROGRESS	
6B6NSL 2021-04-30 13:22:32 UTC+0900	2021-04-30 13:25:36 UTC+0900 vpcNestStack	⊘ CREATE_COMPLETE	
CREATE_COMPLETE	2021-04-30 13:23:33 UTC+0900 iamNestStack	⊘ CREATE_COMPLETE	
NESTED MIJIN-CATAPULT1-iamNestStack-1IU2EK1	2021-04-30 13:23:20 UTC+0900 macroNestStack	⊘ CREATE_COMPLETE	
RO8MA 2021-04-30 13-22-32 UTC+0900	2021-04-30 13:22:33 UTC+0900 macroNestStack	CREATE_IN_PROGRESS	Resource creation Initiated
CREATE_COMPLETE	2021-04-30 13:22:32 UTC+0900 vpcNestStack	G CREATE_IN_PROGRESS	Resource creation Initiated
MIJIN-CATAPULT1	2021-04-30 13:22:32 UTC+0900 iamNestStack	CREATE_IN_PROGRESS	Resource creation Initiated
2021-04-30 13:22:24 UTC+0900 CREATE_COMPLETE	2021-04-30 13:22:31 UTC+0900 vpcNestStack	CREATE_IN_PROGRESS	
	2021-04-30 13:22:31 UTC+0900 macroNestStack	③ CREATE_IN_PROGRESS	-
	2021-04-30 13:22:31 UTC+0900 iamNestStack	CREATE_IN_PROGRESS	
	2021-04-30 13:22:24 UTC+0900 MIJIN-CATAPULT1	③ CREATE_IN_PROGRESS	User Initiated

If the status is 'CREATE_COMPLATE', the creation of mijin is complete.

2.2.2.14 Step.12

MIJIN-CATA	PULT1 Delete Update St	ack actions 🔻	Create stack V
Stack info Ev	rents Resources Outputs Parameters Template Change sets		
Outputs (6)			C
Q Search output:	2		۲
Key 🔺	Value 🗸	Description	⊽ Export name ⊽
chainInfo	http://MIJIN-CATAPULT1-nlb-rest-0a16468e0cca959b.elb.ap-northeast- 1.amazonaws.com:3000/chain/info	-	-
emptyAddress	https://ap-northeast-1.console.aws.amazon.com/systems-manager/parameters/MIJIN- CATAPULT1/shares/nemesis_addresses.json	-	-
harvestAddress	https://ap-northeast-1.console.aws.amazon.com/systems-manager/parameters/MIJIN- CATAPULT1/shares/nemesis_addresses_harvesting.json	-	-
mijinEndpoint	http://18.183.121.6:3000,http://54.95.9.192:3000	mijin Catapult Rest Endpoint	-
mijinLBENdpoint	http://MIJIN-CATAPULT1-nlb-rest-0a16468e0cca959b.elb.ap-northeast-1.amazonaws.com:3000	-	-
nodePeers	http://MIJIN-CATAPULT1-nlb-rest-0a16468e0cca959b.elb.ap-northeast- 1.amazonaws.com:3000/node/peers	-	-

Press 'Outputs' of the created Stack to see the created mijin configuration information.

2.2.2.15 mijin endpoints and checkpoints

r	
	mijinLBEndpoint ロードバランサー経由の mijin API エンドポイントです。セッション維持設 定が有効で、ソース IP に基づいたスティッキーセッションとなります。詳 細はこちら
	mijinEndpoint mijin API endpoints for direct access to API nodes (EC2).
"scoretagin": "0". "bagen": vic." "bagen": vic." "material control in a state of a state	chainInfo mijin の現在のブロック数を確認できます。ブロック数が「2」以上であれ ば正常です。
	harvestAddress AWS Systems Manager パラメータストアに登録された通貨分配用アドレ スのリンクです。
	emptyAddress AWS Systems Manager パラメータストアに登録された未使用アドレスの リンクです。
 Yeard, B., "Second and an advance of the second advan	nodePeers mijin API からノードの接続状態が確認できます。API ノード 1 台と、設定 済みの PEER 台数が表示されていれば OK です。

Table 6: mijin endpoints and checkpoints

You are now ready to use mijin Catapult. Let's start the operation in the next section!

2.2.3 Deploy mijin on an existing VPC

This chapter shows how to deploy mijin Catapult(v.2) on an existing network (VPC). In the commercial version, you can flexibly build a network that fits your environment by changing parameters.

2.2.3.1 List of services to be built on AWS by deployment

- Amazon EC2 (APINode x 2 PEERNode x 3~)
- Amazon EBS
- Elastic Load Balancing
- Amazon Route53
- parameter store

Note:

Elastic Load Balancing may not be created in some cases, depending on the parameter settings specified during deployment.

2.2.3.2 Creation of subnets for existing VPCs

In deploying mijin, two subnets, one for the Public network and one for the Private network, are required to achieve high availability.

If the number of subnets is not sufficient, please refer to the following for creation.

<https://docs.aws.amazon.com/ja_jp/vpc/latest/userguide/working-with-subnets.html# create-subnets>

Note: Create two subnets of multiple availability zones (AZs) so that service can continue even if one AZ fails.

2.2.3.3 View Network

For existing networks, it is possible to build on an already existing environment by changing parameters. An example pattern is shown below.

No	load balancer	API node placement	PEER node placement	figure
1	あり(公開ネットワーク) VPC: Your vpc VpcCidrBlock: xx.xx.xx/xx Public1/2, Private1/2 UseLoadBalancer: Yes LoadBalancerType: external	public NW ApiPlacementNetwork: Public	Private NW	
2	あり(非公開ネットワーク) UseLoadBalancer: Yes LoadBalancerType: internal	Private NW ApiPlacementNetwork: Private	Private NW	
3	No UseLoadBalancer: № LoadBalancerType は設定効 果なし	public NW ApiPlacementNetwork: Public	Private NW	
4	No UseLoadBalancer: № LoadBalancerType は設定効 果なし	Private NW ApiPlacementNetwork: Private	Private NW	

Table 7: API/PEER ネットワーク構成一覧

Note:

The commercial version cannot be configured with a single AZ to achieve high availability, but only with multiple AZs.

Note that you will always need two public networks and two private networks.

Deployment is single region, but can be deployed in each of the world's 21 regions.

2.2.3.4 Step.1



you need to subscribe to use the AMI of mijin Catapult Enterprise. Please press the button in the red frame.

2.2.3.5 Step.2



mijin Catapult (v.2) Enterprise

< Product Detail Subscribe

Subscribe to this software

To create a subscription, review the pricing information and accept the terms for this software.

Terms and Conditions

Tech Bureau Holdings Corp. Offer



mijin Catapult Enterprise AMI, please approve its use.

You must fi

2.2.3.6 Step.3

mijin Ca	tapult (v.2) Ente	erprise		Continue to Configuration
< Product Detail Subscribe				
Subscribe to this s	oftware			
You're subscribed to this software. configure your software.	Please see the terms ar	nd pricing details below	or click the button above to	
Terms and Conditions				
Tech Bureau Holdings Corp. O	ffer			
You have subscribed to this softwa and the seller's End User License A transaction (including your payme applicable, in accordance with the Customer Agreement ^C or other a	Ire and agreed that your Igreement (EULA) C [*] . Yo nt terms) with the respe AWS Privacy Notice C [*] . greement with AWS gov	r use of this software is s u agreed that AWS may ctive seller, reseller or u Your use of AWS service: rerning your use of such	ubject to the pricing terms share information about this nderlying provider, as s remains subject to the AWS services.	
Product	Effective date	Expiration date	Action	

To start from Config, click on the text in the red box.

2.2.3.7 Step.4

mijin Catapult (v.2) Enterprise	(4) Continue to Launch
Product Detail Subscribe Cenfigure Configure this software Explore the deployment on below to select how you wish to deploy the software, then enter the information deployment to configure the deployment. Pelivery Method mijni Catapult Enterprise on Existing VPC CFT Software Version Usas in this version migni Catapult (v2) Enterprise running on t3 large Learn more Retion Software version Us East (N. Virginia) Cast on tabulated to further structure deployment may alter your final pricing. Detail code: rpwingildqdfuzr857563? Retion Software version Cast (updated May 27, 2021) 	Pricing information This is an estimate of typical software and infrastructure costs based on your configuration. Your actual charges for each statement period may differ from this estimate. Software Pricing mijn Catapult (v.2) Enterprise running on t3.large

Select the template to be used in the red frame in (1). In this case, we specify 'mijin Catapult Enterprise on Existing VPC CFT' because it will be created on an existing network. Specify the version of mijin in the red frame in (2). Specify the region where mijin will be deployed. Click 'Continue to Launch' in the red frame of (4).

2.2.3.8 Step.5

mijin Cata	apult (v.2) En	terprise
< Product Detail Subscribe Configure	<u>Launch</u>	
Launch this softwa	re	
Review your configuration and choos	e how you wish to l	aunch the software.
Configuration Details		
Fulfillment Option	mijin Catapult Ente mijin Catapult (v.2) running on t3.large	rprise on Existing VPC CFT Enterprise
Software Version	1.0.0.0	
Region	US East (N. Virginia)
Usage Instructions		
Choose Action		1
Launch CloudFormation	~	Choose this action to launch your configuration through the AWS CloudFormation console.
		(2) Launch

In the red frame in (1), specify the service for which mijin is to be built. In this case, 'Launch CloudFormation'is specified. Click 'Launch'in the red frame in ②.

2.2.3.9 Step.6

Specify template	Create stack
Step 2 Specify stack details	Prerequisite - Prepare template
itep 3	Prepare template Every stack is based on a template. A template is a JSON or YAML file that contains configuration information about the AWS resources you want to include in the stack.
Configure stack options	• Template is ready Use a sample template Create template in Designer
itep 4 Review	
	Specify template A template is a JSON or YAML file that describes your stack's resources and properties.
	Template source Selecting a template generates an Amazon S3 URL where it will be stored.
	Amazon S3 URL Upload a template file
	Amazon S3 URL
	https://s3-ap-northeast-1.amazonaws.com/cf-templates-1301ubacqb2jo-ap-northeast-1/2020331YN8-template1b103xcr6zchilder and the state of the state
	Amazon 53 template URL
	S3 URL: https://s3-ap-northeast-1.amazonaws.com/cf-templates-1301ubacqb2jo-ap-northeast-1/2020331YN8-template1b10 View in

Without editing anything in particular, press 'Next'in the red frame.

2.2.3.10 Step.7

🗵 🛄 Q. Search	[Option+5] 💽 🗘 🞯 Asia Pacific (Tairyo) *	
Elastic Container Service	Casta mulo	0
- <u>cloudromadon</u> / <u>statis</u> /	Create State.	0
Step 1	Specify stack details	
Create stack	Specify stack details	
Specify stack details	Provide a stack name	
Step 3	Stack name	
Configure stack options	Linter a stack name	
Step 4 Review and create	Stack name must contain only latters (e-z, A-2), numbers (0-4), and hyphers (-) and start with a latter. Max 128 characters. Character count: 0/128.	
	Parameters	
	The configuration of the second	
	VPC Computation	
,	Plass input Service Nerre.	
(MIN-CATAPULT	
	VPC	
(Press select the vpc to to initial mpin Select ANS-972-VPC:M	•
	VpcCldrBlock Please input an IP range in this VPC. Normally, you can specify the Ciddilock of the VPC. example, 10.0.0.0/16	
((4) Inter String	
	Public	
,	Prose select Subret lids of Public network	
(Select AMSLEC2:Subject:M	•
	Public2	
(Select AWS://C2/Submet.id/	•
`		
	Private 1 Plase select Subret lids of Private network	
(Select AWS:2522:Subnet:10	•
	Private2	
(Please select Subnet ids of Private robwark. Please specify a different network than Private1.	
\ \		-
	InternalDomainName Please input domain nume/use Internal If you have the same domain in this VPC, you will need to set different values.	
(9 mijn.internal	
	Security Group Configuration	
	Please input range of IP addresses that can access mijin rest. Do not use 0.0.0.0.0/0 if Cataput/Diffective/Fee is No.	
(Lenter String	
	Node Configuration	
	DefaultUnixUser	
(Please input Default Unix Over	
· · · · · · · · · · · · · · · · · · ·		
	KeyName Name of an existing EC2 KeyPair to enable SSH access to the api and peer instances	
(2 Select AMS:EC2:KeyPain:KeyMame	•
	ABI Nede Configuration	
	An invoic Computation ApiPlacementNetwork	
	Plasse select network	
(Public	•
	ApiinstanceType	
(12 téglarge	•
	ApiBootVolumeSize Racet Volume Size	
(15 30	•
	ApilblockVolumeSize	
	API Block Volume Stre(GB)	_
(•
	ApilitickVolumelops	
(3000	•
	Aptrongovolamesze APt Norgo Volarie Szetőlő	
(300	•
	ApiMongoVolumetops	
(10 Recei Velame logos	-
(-
	PEER Node Configuration	
	PeerNumberOfUnits Please input Number of Peer IC2 instances Unit.(Net Autoscaling)	
(20 3	•

D	t4g.large
ע	دىئاسە <i>ئە</i>
	PeerRootVolumeSize PEER Root Volume Size(GB)
	30
	PeerBlockVolumeSize
	PETR Black Volume Stat(GB)
	PetrBlockVolumelops PETR Block Volume lops
	3000
	n Wa Caullannalan
	CatapultVersion
	Please select mijn Catapult Version
	V10038
	CatapultShareMode Please select mile Catapult Share Mode
	sam
	CatapultNetwork
	Please select mijn Catapult Network Identifier
	mjin
	CatapultBlockGenerationTargetTime
	155
	Cataputerectiveree Please select mijn Catapuit Effective Fee
	No
	MaxCosignedAccount
	Preside select Max Cospired Account per Account 25
	FinalizationType Please select mijn Catapuit Finalization Type
	Deterministic
	MaxTransactionperBlock
	Please select Max Transacion per Block
	RestThrottring Please select Rest Rete limit.
	30tps
	UnconfirmCacheSize
	Please maximum size of the unconfirmed transactions cache.
	Small
	loadbalancer Configuration
	UseLoadBalancer Do you use a load balancer/retwork-load balancer/?
	Yes
	LaadfalanrarTvna
	If a load balancer is enabled, specifies the load balancer type
	external
	Imageto This is the alass of the Marketplace ANI that will be deployed as part of this stack. Ensure this parameter is set to the following value: /www.vervice/marketplace/prod-
	/aws/service/marketplace/prod-ustqtwosgsbhw/1.0.3.8
	PP33DUCKETNAME This is the name of the Amazen 53 bucket containing the nested templates that will be deployed as part of this stack. Ensure this parameter is set to the following value: aw parameters are provided as part of the stack.
	awsmp-cft-992382380361-1708727387563
	MP33BucketRegion This is the AWS Region of the bucket containing the nested templates that will be deployed as part of this stack. Ensure this parameter is set to the following value: us-east-
	us-east-1
	MP\$3KeyPrefix
	This is the prefix of the nested templates in the Amazon S3 bucket that will be deployed as part of this stack. Ensure this parameter is set to the following value: a05f1f54-9 9577-afticaa7a0f7c/.
	a05f1f54-9233-4eca-9577-afbcaa7a0f7c/
	mijinStackAlreadyExist
	mijn Stack already exist? If set 'No', create Macro
	G

Enter parameters.

Table 8: CloudFormation Parameter List

No	Parameter	Describe	Recommended value
1	Stack Name	Provide the name in this stack.	•
2	Service Name		•
		Provide the name of the service created by the stack.	
		Used as a crown name for all resources.	
3	VPC	Please specify your VPC.	•
4	VpcCidrBlock		•
		Please list the IP address range of the VPC specified in (3). (CIDR Block)	
		The IP address range in () selected in (3) is fine.	
5	Public1	Specify the public network in the VPC specified in (3).	•

continues on next page

6 Public2 Specify the public network in the VPC specified in (3). December 2015 ③ Private1 Specify the private network in the VPC specified in (3).	No	Parameter	Describe	Recommended
Image: Specify the public network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). ⑦ Private1 Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). ⑧ Private2 Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the private network in the VPC specified in (3). Image: Specify the Private Privat	6	Public2		•
⑦ Private1 Specify the private network in the VPC specified in (3). ③ Private2 Specify the private network in the VPC specified in (3). ③ Little 2 ③ Little 2 Specify the private network in the VPC specified in (3). ③ Little 4 ③ InternalDomainName Little 4 Little 4 Specify the Private network in the VPC specified in (3). ③ Little 4 ③ Public Location IP Specify the IP address that is allowed to connect to mijin Catapult's API. Public Location IP Specify the IP address that is allowed to connect to mijin Catapult's API. Public Location IP Specify the IP address that is allowed to connect to mijin Catapult's API. Public Value Private 2 (2 0 SSH 離告 能算 Little X de X) Public Value Public Val			Specify the public network in the VPC specified in (3). ⑤ と別のネットワークを指定する必要があります。	
● Private2 Specify the private network in the VPC specified in (3). ① じは別のネットワークを指定する必要があります。 mijin.internal ③ InternalDomainName List the DNS name for name resolution to be used between nodes.	Ĩ	Private1	Specify the private network in the VPC specified in (3).	•
・ Specify the private network in the VPC specified in [3]. ・	8	Private2		•
9 InternalDomainName mijin.internal 9 InternalDomainName List the DNS name for name resolution to be used between nodes. 非公開ネットワーク用で、公開はされません。 複数スタック構築型には一家Lしてください。 mijin.internal 0 Public Location IP Specify the IP address that is allowed to connect to mijin Catapult's API. IP レンジ指定可 (/24 など) XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX			Specify the private network in the VPC specified in (3). ⑦ とは別のネットワークを指定する必要があります。	
Isiste DNS name for name for name desclution to be used between nodes. Bissiste N > D > first Subject State State Subject State State Subject State Sta	9	InternalDomainName		mijin.internal
9 Public Location IP Specify the IP address that is allowed to connect to mijin Catapult's API. IP レンジ指定可 (24 など) XXXXXXX(32 etc. (1) Default UnixUser 作成する EC2 の構築 Unix ユーザー ubuntu (2) KeyName EC2 o SSH 鍵を指定してください。 表示されない場合は事前作成が必要です。 こちら . (3) ApiPlacementNetwork API ノードの部属ネットワークを選択してください。 . (3) ApiInstanceType C5n.2xlarge 以上 Architecture and Specification Requirements 参照 . (3) ApiRootVolumeSize API ノードのルートディスクサイズ (GB) Docker ログや System log に使用 30GB or more (3) ApiBlockVolumeSize mijjin ブロックデータ格納用ディスクサイズ (GB) Use gp2 disk 500GB or more (3) ApiBlockVolumeSize DPS for mijin block data Over 3000 (3) ApiMongoVolumeIops IOPS for mongo data storage (GB) For Blockchain data call 3000 IOPS or more (3) ApiMongoVolumeIops IOPS for mongo data acla 3000 IOPS or more (3) PeerNumberOfUnits PEER ノードの含数 3 or more (3) PeerRootVolumeSize Disk size for mongo data acla 3000 IOPS or more (4) PeerRootVolumeSize Disk size for PEER node Architecture and Specification Requirements 参照 3 or more (4) PeerRootVolumeSize Disk size for PEER node block data storage SOOGB or more (5) Decker			List the DNS name for name resolution to be used between nodes. 非公開ネットワーク用で、公開はされません。 複数スタック構築時には一意にしてください。	
Specify the IP address that is allowed to connect to mijin Catapult's API. etc. 10 Default UnixUser 作成する EC2 の場準 Unix ユーザー ubuntu 10 KeyName EC2 の SSH 健を指定してください、 表示されない場合は事前作成が必要です。 こちら i 10 ApiPlacementNetwork API ノードの配置ネットワークを選択してください。 i 10 ApiPlacementNetwork API ノードのコンスタンスタイブ Architecture and Specification Requirements 参照 i 10 ApiRootVolumeSize API ノードのインスタンスタイブ Architecture and Specification Requirements 参照 30GB or more 11 ApiRootVolumeSize API ノードのノンクテンクを避免してくだらい。 30GB or more 11 ApiRootVolumeSize API ノードのノンスタンスタイブ Architecture and Specification Requirements 参照 30GB or more 11 ApiRootVolumeSize API ノードのルートディスクサイズ (CB) Docker ログや System log に使用 500GB or more 11 ApiBlocKVolumeSize Imijin ブロックデータ格納用ディスクサイズ (CB) Use gp2 disk Sourd at a call Over 3000 11 ApiBlocKVolumeSize Disk size for mongo data storage (CB) For Blockhain data call Over 3000 Sourd area 11 Instance type of PEER node Architecture and Specification Requirements 参照 3 or more 3 or more 12	10	Public Location IP		XX.XX.XX.XX/32
① Default UnixUser 作成する EC2 の標準 Unix ユーザー ubuntu ② KeyName EC2 の SSH 鍵を指定してください。 表示されない場合は事前作成が必要です。 こちら ・ ③ ApiPlacementNetwork API ノードの配置ネットワークを選択してください。 ・ ④ ApiInstanceType API ノードのインスタンスタイブ Architecture and Specification Requirements 参照 ・ ⑤ ApiRootVolumeSize API ノードのノートディスクサイズ (GB) Docker ログや System log に使用 30GB or more ⑨ ApiBlockVolumeSize mijin ブロックデータ粘熱用ディスクサイズ (GB) Use gp3 disk 500GB or more ⑦ ApiBlockVolumeSize Disk size for mongo data storage (GE) For BlockKolumeSize 300G IOPS or more ⑨ ApiMongoVolumeIops IOPS for mongo data 3000 IOPS or more ⑨ ApiMongoVolumeIops IOPS for mongo data storage (GE) For BlockkrolumeIops 300F or more ⑨ ApiMongoVolumeIops IOPS for mongo data 3000 IOPS or more ⑨ PeerInstanceType Instance type of PEER node Architecture and Specification Requirements 参照 30GB or more ② PeerBlockVolumeSize Disk size for PEER node block data storage 30GB or more ③ PeerRoutVolumeSize Disk size for PEER node block data storage 30GB or more ③ Pe			Specify the IP address that is allowed to connect to mijin Catapult's API. IP レンジ指定可 (/24 など)	etc.
・	1	Default UnixUser	作成する EC2 の標準 Unix ユーザー	ubuntu
EC2 の SSH 鍵を指定してください。 こちら こちら ③ ApiPlacementNetwork API ノードの配置ネットワークを選択してください。 . ④ ApiInstanceType API ノードの配置ネットワークを選択してください。 . ④ ApiRootVolumeSize API ノードのインスタンスタイブ Architecture and Specification Requirements 参照 30GB or more ③ ApiRootVolumeSize API ノードのルートディスクサイズ (GB) Docker ログや System log に使用 30GB or more ④ ApiBlockVolumeSize mijin ブロックデータ格納用ディスクサイズ (GB) Use gp3 disk 500GB or more ⑦ ApiBlockVolumeSize IOPS for mijin block data Over 3000 ⑨ ApiMongoVolumeSize Disk size for mongo data storage (GB) For BlockAnal data call 3000 IOPS or more ⑨ ApiMongoVolumeIops IOPS for mongo data 3 or more ⑨ ApiMongoVolumeSize Disk size for mongo data 3 or more ⑨ ApiMongoVolumeSize Disk size for mongo data 3 or more ⑨ PeerNumberOfUnits PEER ノードの台数 3 or more ⑦ PeerNumberOfUnits PEER ノードの台数 3 or more ⑦ PeerNumberOfUnits PEER Node root disk size (GB) Docker ログや System log L使用 3 or more ⑦ PeerBlockVolumeSize Disk siz	(12)	KeyName		•
(9) ApiPlacementNetwork APIノードの配置ネットワークを選択してください。 . (9) ApiInstanceType APIノードのパンスタンスタイプ Architecture and Specification Requirements 参照 30GB or more (5) ApiRootVolumeSize 30GB or more 30GB or more (6) ApiBlockVolumeSize 30GB or more 500GB or more (6) ApiBlockVolumeSize 500GB or more 500GB or more (7) ApiBlockVolumeSize 500GB or more 500GB or more (9) ApiBlockVolumeSize DiPS for mijin block data Over 3000 (9) ApiMongoVolumeSize Disk size for mongo data storage (GB) For BlockChain data call 30000 10PS or more (9) ApiMongoVolumeIops IOPS for mongo data 3000 10PS or more (9) ApiMongoVolumeSize Instance type of PEER node Architecture and Specification Requirements 参照 3 or more (2) PeerRootVolumeSize PEER node root disk size (GB) Docker ログや System log に使用 30GB or more (2) PeerBlockVolumeSize Disk size for PEER node foot disk size (GB) Docker ログや System log に使用 30GB or more (3) PeerBlockVolumeSize Disk size for PEER node foot disk size (GB) Docker ログや System log に使用 30GB or more			EC2 の SSH 鍵を指定してください。 表示されない場合は事前作成が必要です。 こちら	
(例) ApilnstanceType API ノードのインスタンスタイプ Architecture and Specification Requirements 参照 30GB or more (例) ApiRootVolumeSize API ノードのルートディスクサイズ (GB) Docker ログや System log に使用 30GB or more (例) ApiBlockVolumeSize mijin ブロックデータ格納用ディスクサイズ (GB) Use gp3 disk 500GB or more (例) ApiBlockVolumeSize IOPS for mijin block data Over 3000 (例) ApiBlockVolumeIops IOPS for mijin block data Over 3000 (例) ApiMongoVolumeSize Disk size for mongo data storage (GB) For Blockchain data call 3000 IOPS or more (例) ApiMongoVolumeIops IOPS for mongo data 3000 IOPS or more (例) PeerNumberOfUnits PEER / ードの台数 3 or more (例) PeerRootVolumeSize Instance type of PEER node Architecture and Specification Requirements 参照 30GB or more (例) PeerBlockVolumeSize Disk size for PEER node<	(13)	ApiPlacementNetwork	API ノードの配置ネットワークを選択してください。	•
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용 ApiMongoVolumeSizeApiMongoVolumeSize300GB or moreりisk size for mongo data storage (GB) For Blockchain data call3000 IOPS or more9ApiMongoVolumeIopsIOPS for mongo data10PS for mongo data3000 IOPS or more20PeerNumberOfUnitsPEER / ードの台数21PeerInstanceTypeInstance type of PEER node Architecture and Specification Requirements 参照22PeerRootVolumeSizeNEER node root disk size (GB) Docker ログや System log に使用23PeerBlockVolumeSizeDisk size for PEER node block data storage23PeerBlockVolumeSizeDisk size for PEER node block data storage24PeerBlockVolumeSizeDisk size for PEER node block data storage25CatapultVersionIOPS for block data in PEER node more	10	ApiBlockVolumeIops	IOPS for mijin block data	Over 3000
Disk size for mongo data storage (GB) For Blockchain data callDisk size for mongo data storage (GB) For Blockchain data call19ApiMongoVolumelopsIOPS for mongo data3000 IOPS or more20PeerNumberOfUnitsPEER / - ドの台数3 or more21PeerInstanceTypeInstance type of PEER node Architecture and Specification Requirements 参照500GB or more22PeerRootVolumeSizePEER node root disk size (GB) Docker ログや System log に使用30GB or more23PeerBlockVolumeSizeDisk size for PEER node block data storage500GB or more29CatapultVersionmijin のバージョンv10038	(18)	ApiMongoVolumeSize		300GB or more
10ApiMongoVolumelopsIOPS for mongo data3000 IOPS or more20PeerNumberOfUnitsPEER ノードの台数3 or more21PeerInstanceTypeInstance type of PEER node Architecture and Specification Requirements 参照c5n.xlarge 以上22PeerRootVolumeSize30GB or more23PeerBlockVolumeSizeDisk size for PEER node lock data storage500GB or more23PeerBlockVolumeSizeDisk size for PEER node lock data storage500GB or more23CatapultVersionmijin のパージョンv10038			Disk size for mongo data storage (GB) For Blockchain data call	
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Instance type of PEER node Architecture and Specification Requirements 参照30GB or more②PeerRootVolumeSize30GB or more②PEER node root disk size (GB) Docker ログや System log に使用300GB or more③PeerBlockVolumeSizeDisk size for PEER node block data storage500GB or more④PeerBlockVolumeSizeIOPS for block data in PEER node3000 IOPS or more④CatapultVersionmijin のパージョンv10038	21	PeerInstanceType		c5n.xlarge 以上
 PeerRootVolumeSize PEER node root disk size (GB) Docker ログや System log に使用 PeerBlockVolumeSize Disk size for PEER node block data storage PeerBlockVolumeIops IOPS for block data in PEER node 3000 IOPS or more CatapultVersion mijin のパージョン v10038 			Instance type of PEER node Architecture and Specification Requirements 参照	
空 PEER node root disk size (GB) Docker ログや System log に使用 500GB or more 空 PeerBlockVolumeSize 500GB or more 空 PeerBlockVolumelops IOPS for block data in PEER node 3000 IOPS or more 空 CatapultVersion mijin のバージョン v10038	22	PeerRootVolumeSize		30GB or more
③ PeerBlockVolumeSize Disk size for PEER node block data storage 500GB or more ④ PeerBlockVolumelops IOPS for block data in PEER node 3000 IOPS or more ④ CatapultVersion mijin のパージョン v10038			PEER node root disk size (GB) Docker ログや System log に使用	
29 PeerBlockVolumelops IOPS for block data in PEER node 3000 IOPS or more 29 CatapultVersion mijinのパージョン v10038	23	PeerBlockVolumeSize	Disk size for PEER node block data storage	500GB or more
珍CatapultVersionmijinのバージョンv10038	(24)	PeerBlockVolumelops	IOPS for block data in PEER node	3000 IOPS or more
	25	CatapultVersion	mijin のバージョン	v10038

Table	8 - continued	from	previous	nage
Iable		110111	previous	page

continues on next page

No	Parameter	Describe	Recommended
			value
26	CatapultShareMode		ssm
		Specify where to save block generation information	
		Currently fixed to AWS Systems Manager	
		Currently liked to AWS Systems Manager	
27)	CatapultNetwork	mijin ネットワーク指定	mijin
28	Catapult BlockGenera-	ブロック生成間隔	15s
	tionTargetTime		
29	CatapultEffectiveFee	手数料有無の設定	No
30	MaxCosignedAccount	最大署名数	25
31	FinalizationType	finalization system	Deterministic
32	MaxTransactionperBlock	1 ブロックの最大トランザクション数	6000
33	RestThrottring	API接続数上限	30tps
34)	UnconfirmCacheSize	Number of unauthorized transactions stored	Small
35	UseLoadBalancer		Yes
		NLB use or not (fixed Yes for preview)	
36	LoadBalancerType	ロードバランサー配置タイプ	External
37)	ImageId	AMI ID (cannot be changed)	Unchangeable
38	MPS3BucketName	S3 bucket name (cannot be changed)	Unchangeable
39	MPS3BucketRegion	S3 Region (cannot be changed)	Unchangeable
40	MPS3KeyPrefix	S3 Key Prefix (cannot be changed)	Unchangeable
(41)	mijinStackAlreadyExist		No
		If there are other mijin stacks, select "Yes" when recreating	

able 8 – continued from previous pad	Table	8 - continued	from	previous	page
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Press 'Next'after completing the parameter entry.

2.2.3.11 Step.8

aws	Services 🗸	Resource Groups 🗸 🔭	¢	Tokyo 🗸 Support 🗸
CloudF	ormation > Stack	s > Create stack		
Step 1 Specify	template	Configure stack opt	ions	
Step 2 Specify	stack details	Tags You can specify tags (key-value pairs) to a	pply to resources in your stack. You can add up to 50 unique tags for	each stack. Learn more [
Step 3 Config	ure stack options	Key	Value	Re
Step 4 Review				m o v e
		Add tag		
		Permissions Choose an IAM role to explicitly define how uses permissions based on your user crede	w CloudFormation can create, modify, or delete resources in the stac ntials. Learn more 🖸	k. If you don't choose a role, CloudFormation
		IAM role - optional Choose the IAM role for CloudFormation t IAM role na… ▼ Sample-rol	o use for all operations performed on the stack. e-name	▼ Remove
		Advanced options	stack, like notification options and a stack policy. Learn m	ore 🖸
		Stack policy Defines the resources that you want to	protect from unintentional updates during a stack update.	
		► Rollback configuration Specify alarms for CloudFormation to back. Learn more	monitor when creating and updating the stack. If the operation brea	ches an alarm threshold, CloudFormation rolls it
		Notification options		
		Stack creation options		
				Cancel Previous Next
Feedback	English (US)		© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. /	All rights reserved. Privacy Policy Terms of Us

Without editing anything in particular, press 'Next'in the red frame.

2.2.3.12 Step.9

nomphane	Review MUIN-CATAPULT1		
	Step 1: Specify template		telet
stade details	Template		
ore timb options			
	Template URL Telepus/regin-salapulit-fin-template-tensist-ap-reentimeste-Lamaponamus.com/product-entemp	in manys, repond to pand	
	Tooh description		
	mijer Catapali, Entergetor with multiple submets VPC		
	Step 2: Specify Mark details		
	Parameters (31)		
	Q: Grand parameters		*
	10 M	Value	
	Apittodivibunings		
	Apilled/Mounclies	SH	
	Apintaroliga	thanp	
	Apropriation of the second sec	-	
	ApPlanmentitiere 6	Public	
	Aplitedestumicise		
	AvailabilityDown	sp-northeaet-tc	
	Analaditadonal	sp-northcast-fia	
	Cataputities KGeneration Fargert Time	*	
	Graputilite scalar	10 K	
	Congulationauxi		
	Calestification		
	Default. Hot. Inc.	abarta	
	Realization from	Probabilities	
	Kaylene	101-03W0-07	
	ioathianarTge	orternal	
	Radinipelikosari	-	
	Pachananterpellant	20/1008	
	Peer Elash Islamminge.		
	Rev Bud Volumentus	100	
	Referrance	a a a a a a a a a a a a a a a a a a a	
	Paripotiulum/Sat		
	Public surrisonP		
	Industry	200ps	
	laviation	HUR-CRW/ULT1	
	UninferCaleEx	Healtare	
	Uniteditioner	54	
	Step 3: Certifiquez stack options		Date:
	Tegs (0)		
	Q, Sendings		
	Rep A Marco		
	No Lago		
	There are no kapp-infront for this ske		
	Permissions		
	Re president		
	There is no kild role associated with this	Aut .	
	Mark pelicy		
	No stack perity		
	There is no sharily policy shelf and		
	Roliback configuration		
	Reducing line		
	Could with stars ANS		
	-		
	Netification options		
	to retfiction action		
	These are on out-fluation options defin	-	
	Stack creation options		
	Rolland or Inform		
	Termuk		
	1		
	Terrorial line protection Disabled		
	* Duth-outs/Ink		
	Capabilities		
	 An interaction statement in the stilly and Assess Research (100) encourses. Class that you 	anti in anala mali-af dana maaram, and	thei Beylane
0	the minimum regularit permittion, thradidition, they have calcumpanies. Check that the answer, to see more \$2	anton street on anipe within por 1003	
C C	Per tris template, 1855 Claud Tematian might require an amongolast aquibility Cability measures. Learn more [5]	UTURID, DRMAD Own the sepahility	a of these
	I asknowledge that dWL CasePermation might create IAN resources with asstant	anar.	
	Indexectivity that BHC Canad investigation might create UAP resources with contem- Indexectivity that BHC-ElevelFormation might require the following capability: CANABLEY, CANABLE	ann.	

Check the two items in the red frame in 1. Click 'Create Stack'in the red frame in 2. If there are no errors, creation will begin.

2.2.3.13 Step.10

aws	Services ▼				
=	CloudFormation > Stacks > MIJIN-CATAPULT-PRE1				
	Stacks (4) C	MIJIN-CATAPULT-PRE1			
	Q MIJIN-CATAPULT-PRE1 X	Stack info Events Resources Outputs	Parameters Template Change sets		
	Active v View nested				
	NESTED MIJIN-CATAPULT-PRE1-vpcNestStack-15SKKPLYM	Events (1) Q. Search events			
	2020-11-26 17:48:44 UTC+0900 CREATE_IN_PROGRESS	Timestamp		Status	Status reason
	NESTED MUIN-CATAPULT-PRE1-iamNestStack-1QNT328H GOQWU 2020-11-28 17-88:44 UTC-0900 G CREATE_IN_PROGRESS	2020-11-26 17:48:36 UTC+0900	MUIN-CATAPULT-PRE1	CREATE_IN_PROGRESS	User Initiated
	NESTED MUIN-CATAPULT-PRE1-macroNestStack-OE4HZ2F 9UWYT 2020-11-26 17:48:43 UTC-0900 © CBRATE, JM_PHOGRESS				
	MUIN-CATAPULT-PRE1 2020-11-26 17.48:36 UTC-0900 () CREATE_IN_PROGRESS				

Confirm that Stack has started and is in 'CREATE_IN_PROGRESS'state. This state will take approximately 20~30 minutes.

2.2.3.14 Step.11

⊡ Stacks (6) C	MIJIN-CATAPULT1	Delete Update Stack act	ions 🔻 Create stack 🔻
Q MIJIN-CATAPULT1 X	Stack info Events Resources Outputs Parameters	Template Change sets	
Active V < 1 >	Events (17)		C
NESTED MIJIN-CATAPULT1-loadBalancerNestStack -1HCA87RNUNK9Q	Q. Search events		٢
2021-04-30 13:42:04 UTC+0900 CREATE_COMPLETE	Timestamp v Logical ID	Status	Status reason
NESTED MUIN-CATAPULT1-miiinNestStack-16T197	2021-04-30 13:45:40 UTC+0900 MIJIN-CATAPULT1	⊘ CREATE_COMPLETE	
12223GK	2021-04-30 13:45:37 UTC+0900 loadBalancerNestStack	⊘ CREATE_COMPLETE	-
CREATE_COMPLETE	2021-04-30 13:42:05 UTC+0900 loadBalancerNestStack	CREATE_IN_PROGRESS	Resource creation Initiated
NESTED MIJIN-CATAPULT1-macroNestStack-TFT74	2021-04-30 13:42:04 UTC+0900 loadBalancerNestStack	CREATE_IN_PROGRESS	-
GMT7QPN 2021-04-30 13:22:32 UTC+0900	2021-04-30 13:41:59 UTC+0900 mijinNestStack	CREATE_COMPLETE - O CREATE_IN_PROGRESS Resource creation initiated	
CREATE_COMPLETE	2021-04-30 13:25:41 UTC+0900 mijinNestStack	CREATE_IN_PROGRESS	Resource creation Initiated
NESTED MIJIN-CATAPULT1-vpcNestStack-GGV80H	2021-04-30 13:25:40 UTC+0900 mijinNestStack	G CREATE_IN_PROGRESS	
6B6NSL 2021-04-30 13:22:32 UTC+0900	2021-04-30 13:25:36 UTC+0900 vpcNestStack	⊘ CREATE_COMPLETE	
CREATE_COMPLETE	2021-04-30 13:23:33 UTC+0900 iamNestStack	⊘ CREATE_COMPLETE	
NESTED MIJIN-CATAPULT1-iamNestStack-1IU2EK1	2021-04-30 13:23:20 UTC+0900 macroNestStack	⊘ CREATE_COMPLETE	
RO8MA 2021-04-30 13-22-32 UTC+0900	2021-04-30 13:22:33 UTC+0900 macroNestStack	CREATE_IN_PROGRESS	Resource creation Initiated
CREATE_COMPLETE	2021-04-30 13:22:32 UTC+0900 vpcNestStack	G CREATE_IN_PROGRESS	Resource creation Initiated
MIJIN-CATAPULT1	2021-04-30 13:22:32 UTC+0900 iamNestStack	CREATE_IN_PROGRESS	Resource creation Initiated
2021-04-30 13:22:24 UTC+0900 CREATE_COMPLETE	2021-04-30 13:22:31 UTC+0900 vpcNestStack	CREATE_IN_PROGRESS	
	2021-04-30 13:22:31 UTC+0900 macroNestStack	③ CREATE_IN_PROGRESS	-
	2021-04-30 13:22:31 UTC+0900 iamNestStack	CREATE_IN_PROGRESS	
	2021-04-30 13:22:24 UTC+0900 MIJIN-CATAPULT1	③ CREATE_IN_PROGRESS	User Initiated

If the status is 'CREATE_COMPLATE', the creation of mijin is complete.

MIJIN-CATAPULT1 Delete Update Stack actions 🔻 Create stack . Stack info Events Resources Outputs Parameters Template Change sets Outputs (6) С Q Search outputs 0 Export Key ۸ Value ∇ Description ∇ name 🛛 http://MIJIN-CATAPULT1-nlb-rest-0a16468e0cca959b.elb.ap-northeastchainInfo 1.amazonaws.com:3000/chain/info https://ap-northeast-1.console.aws.amazon.com/systems-manager/parameters/MIJINemptyAddress CATAPULT1/shares/nemesis_addresses.json https://ap-northeast-1.console.aws.amazon.com/systems-manager/parameters/MIJINharvestAddress ${\sf CATAPULT1/shares/nemesis_addresses_harvesting.json}$ mijin Catapult mijinEndpoint http://18.183.121.6:3000,http://54.95.9.192:3000 Rest Endpoint http://MIJIN-CATAPULT1-nlb-rest-0a16468e0cca959b.elb.ap-northeast-1.amazonaws.com:3000 mijinLBENdpoint http://MIJIN-CATAPULT1-nlb-rest-0a16468e0cca959b.elb.ap-northeastnodePeers 1.amazonaws.com:3000/node/peers

2.2.3.15 Step.12

Press 'Outputs' of the created Stack to see the created mijin configuration information.

%The table below is omitted because it is the same as the new network version.

	mijinLBEndpoint ロードバランサーを通した mijin の API エンドポイントです。API ノードを 負荷分散しますが、ソース IP によるスティッキーセッションが有効です。 詳細はこちら
	mijinEndpoint API endpoint for direct access to API nodes (EC2 instances). It can be con- nected to without a load balancer.
"constant" 10" "constant" 10" "montant" 10"	chainInfo You can check the current number of blocks in mijin. Make sure that the number of blocks is "2"or more.
And Carl Carl Carl Carl Carl Carl Carl Carl	harvestAddress A link to a currency distribution address registered in the AWS Systems Manager parameter store.
MURIC LANGE	emptyAddress A link to an unused address registered in the AWS Systems Manager pa- rameter store.
Years' & The start of the start of	nodePeers mijin API からノードの接続状態を確認できます。API ノード1台と設定さ れた PEER ノード数が表示されていれば正常です。

Table 9: mijin endpoints and checkpoints

You are now ready to use mijin Catapult. Let's start the operation in the next section!

2.2.4 Deploying a trial version of mijin

In the trial version, it is possible to build a network that fits your environment by changing parameters. An example pattern is shown below.

This page will guide you through the process of launching the mijin Catapult trial version from cloud-formation in the AWS Marketplace.

2.2.4.1 Services using AWS

- Amazon EC2
- Amazon EBS
- Amazon Route53
- Amazon VPC(Nat Gateway)
- parameter store

2.2.4.2 View Network

Note:

The trial version consists of only a single AZ.

Deployment is single region, but can be deployed in each of the world's 20 regions.



2.2.4.3 Step.1



You must subscribe to use the AMI for mijin Catapult Free Trial. Please press the button in the red frame.

2.2.4.4 Step.2



mijin Catapult AMI, so please approve its use.

2.2.4.5 Step.3



mijin Catapult Free Trial CFT 0.9.6.4

CloudFormation Template

This Cloudformation Stack makes it easy to build mijin.

Users create a new VPC and place a single EC2 instance in a public network.

After the Cloudformation execution is complete, the mijin address data is stored in the System Manager's Parameter Store. Using symbol-cli without having to remotely log in to the server, users are able to use the mijin immediately.

- View Template Components
- View Usage Instructions
- Close CloudFormation Template



To create the network shown in the figure by AWS CloudFormation, click on the text in the red box.

2.2.4.6 Step.4

aws	Services 🗸	Resource Groups 👻 🛠	۵	Tokyo 👻	Support 👻
• • • •	🗅 🗹 Close				¥03
Resource DirectorySe DocDB DynamoDB EC2 ECR ECS EFS	types ervice	File: template1*	mijinNest Stack		÷+
Services v Resource Groups v A Tokyo v Services v Resource types DirectoryService DirectoryService DirectoryService DirectoryService DirectoryService DirectoryService DirectoryService DirectoryService DirectoryService Pies: "emplate1" File: "emplate1" Image: Close Messages template1 Messages	880				
template1 1 AWSTemplat 2 Descriptio 3 - Parameters 4 - Servicek 5 Descri Components 7	P eFormatVersion: 2 n: mijin Catapult : lame: ption: Please inp emplate	1010-09-09 : with multiple subnets VPC out Service Name.	Choose template language: U JSUN I TAML		
Feedback	G English (US)		© 2008 - 2020, Amazon Web Services, Inc. or its affiliates. All rights reser	ved. Privacy Poli	cy Terms of Use

Press CreateStack on the cloud symbol without editing anything in particular.

2.2.4.7 Step.5

Specify template	Create stack
Step 2 Specify stack details	Prerequisite - Prepare template
Step 3	Prepare template Every stack is based on a template. A template is a JSON or YAML file that contains configuration information about the AWS resources you want to incl the stack.
Step 4	Template is ready Use a sample template Create template in Designer
Review	
	Specify template A template is a JSON or YAML file that describes your stack's resources and properties.
	Template source Selecting a template generates an Amazon 53 URL where it will be stored.
	Amazon S3 URL Upload a template file
	Amazon S3 URL
	https://s3-ap-northeast-1.amazonaws.com/cf-templates-1u7e0uccd2fpf-ap-northeast-1/2020232dJp-template1gn4klrksbms
	Amazon SS template UKL

Without editing anything in particular, press 'Next'in the red frame.

2.2.4.8 Step.6

cloud-ormation > Stacks	> Create	SLACK				
Step 1 Specify template	:	Specify stack details				
Step 2 Specify stack details		Stack name				
specify state details		Stack name				
Step 3		Enter a stack name				
Configure stack options	<u> </u>	Stack name can include letters (A-Z and a-z), n	numbers (0-9), and dashes (-).			
Step 4						
Review		Parameters				
		Parameters are defined in your template and a	allow you to input custom values when you create or update a	stack.		
		VPC Configuration				
		ServiceName				
	(2)	Please input Service Name.				
	•	MDIN-CATAPOLI				
		AvailabilityZone1 Please input AvailabilityZone1				
	(3)	ap-northeast-1c				*
		Security Group Configuration				
	-	PublicLocationIP Please input range of IP addresses that can acc	cess mijin rest			
	4	0.0.0/0				
		Node Configuration				
	_	DefaultUnixUser				
	5	ubuntu				
		KeyName				
		Name of an existing EC2 KeyPair to enable SSI	H access to the api and peer instances			
	0					•
		API Node Configuration				
		Dual EC2 instance type				
	O	t3.large				•
		mijin Configuration				
		CatapultVersion Please select mijin Catapult Version				
		v0964				*
		CatapultShareMode				
		Please select mijin Catapult Share Mode				-
		3311				
		CatapultNetwork Please select mijin Catapult Network Identifier	r			
		mijin-test				*
		CatapultBlockGenerationTargetTime				
	8	Please select mijin Catapult Block Generation	Target Time			-
	U	605				*
					9	

Enter parameters.

No	Parameter	Describe
1	Stack Name	Provide the name in this stack.
2	Service Name	
		Describe the name of the service created by the stack
		This will be used as the crown name for all resources
		This will be discu as the clowith fame for all resources.
3	Availability Zone	Select the availability zone for your region.
4	Public Location IP	
		Specify the IP address that is allowed to connect to mijin Catapult's API.
		IP アドレスはレンジでも可能です(/24 など)
5	Default UnixUser	List the standard Unix user for the EC2 instance you are creating.
6	KeyName	
		Select the SSH key for the remote connection for the EC2 instance you are creating
		表示されていない場合、事前に鍵を作成する必要があります。
		鍵の作成方法はこちらをご確認ください。
7	Dual InstanceType	Select the specifications of the EC2 instance to be created.
8	Catapult BlockGener- ationTargetTime	Select the mijin block generation time; you can choose 30 or 60 seconds only.

After completing the parameter entry, press 'Next'().

2.2.4.9 Step.7

	Resource Groups Y	*	Tokyo 👻 Supp	port
CloudFormation > Stacks	> Create stack			
Step 1 Specify template	Configure stack optic	ons		
Step 2 Specify stack details	Tags You can specify tags (key-value pairs) to app	ly to resources in your stack. You can add up to 50 unique tags for e	ach stack. Learn more 🖸	
Step 3 Configure stack options	Key	Value		R e
Step 4 Review				m o v e
	Add tag			
	Permissions Choose an IAM role to explicitly define how uses permissions based on your user credent	CloudFormation can create, modify, or delete resources in the stack. ials. Learn more 🔀	If you don't choose a role, CloudFormat	tion
	IAM role - optional Choose the IAM role for CloudFormation to to IAM role na ▼ Sample-role-	use for all operations performed on the stack.	Remove	
	IAM role - optional Choose the IAM role for CloudFormation to of IAM role na Comple-role- Advanced options You can set additional options for your st	use for all operations performed on the stack. name ack, like notification options and a stack policy. Learn mor	Remove	
	IAM role - optional Choose the IAM role for CloudFormation to u IAM role na Cample-role- Advanced options You can set additional options for your st Stack policy Defines the resources that you want to p	use for all operations performed on the stack. name ack, like notification options and a stack policy. Learn mor rotect from unintentional updates during a stack update.	▼ Remove	
	AM role - optional Choose the IAM role for CloudFormation to u AM role na ▼ Sample-role- Choose the IAM role for CloudFormation to u Sample-role- Advanced options You can set additional options for your st Vou can set additional options for your st Stack policy Defines the resources that you want to p Choose the resources that you want to p	use for all operations performed on the stack. name ack, like notification options and a stack policy. Learn mor rotect from unintentional updates during a stack update.	Remove e	ı rolls
	AM role - optional Choose the IAM role for CloudFormation to u IAM role na ♥ Sample-role- Advanced options You can set additional options for your st • Stack policy Defines the resources that you want to p • Rollback configuration Specify alarms for CloudFormation to me back. Learn more []	use for all operations performed on the stack. name ack, like notification options and a stack policy. Learn mor rotect from unintentional updates during a stack update.	Remove e	ı rolls
	AM role - optional Choose the IAM role for CloudFormation to u AM role na Cample-role- Advanced options You can set additional options for your st Stack policy Defines the resources that you want to p Chones for CloudFormation to me back. Learn more Comformation to me back. Learn more Comformation to me	use for all operations performed on the stack. name ack, like notification options and a stack policy. Learn mor rotect from unintentional updates during a stack update. onitor when creating and updating the stack. If the operation breach	Remove e	o rolls

Without editing anything in particular, press 'Next'in the red frame.

2.2.4.10 Step.8

aws Services - Re	source Groups - 1	Q. Takyo - Support -
CloseProvention > Statis >	Create stark	
9mp 1	Review MUN-CATADULT-TEST	TPIAL1
Specify template	Review MIDIN-CATAFOLI-TEST	TRIALI
Step 2 Specify stack details	Step 1: Specify template	
	Template	
Configure stack options	Template UR.	
239.4	https://ki-ap-northeasi-1.amaxonaws.com/ch-templates-	tu/helussd31gf-ap-northeast-1/20203333k79-template14hjustaling
Neview	Stack description mijin Categolit with multiple subnets VPC	
	Estimate cert 🕑	
	Step 2: Specify stack details	Let.
	Parameters (10)	
	Q, Search parameters	•
		• Wite
	Availability Done 1	ap-northead-to
	CataputblockGenerationTargetTime	601
	CatapultNetwork	mijin-test
	CatapultihareMade	429.
	CatapultVenion	v0964
	DefaultUnixLoer	abanta
	DualimitanceType	15.Large
	Publiciacitien#	6.0.0.8/0
	ServiceName	MUIN-CATAPULT-TEST-TRIAL1
	Step 3: Configure stack options	Edit:
	Tags (0)	
	Q, Search tops	
	Kay	A Value T
		No tass
	There are	no tags defined for this stack
	Permissions	
		No permissions
	There is no i	Writrate associated with this stack
	Stack policy	
		No stack pelicy
	Then	to ne stack policy defined
	Rollback configuration	
	Honizoing time	
	- CloudBlack alare APN	
	and the second sec	
	Martificial constants	
	Notification options	
		o natification options
	There are	no net/likation options defined
	Stack creation options	
	Romack on tabute Enabled	
	Timeout	
	Termination protection	
	Disabled	
	 Quick-create link: 	
	Capabilities	
	() The following resource() require capabilities: (##	::ClaudFormation:Stack)
	This template contains identity and Access Managem and that they have the minimum sexulard mominica	ent GAAD resources. Check that you want to create each of these resources a in addition, they have parteen sames. Check that the custom names are
	unique within your ANS account. Learn more	an entered on the CAMER TV LINE WHEN You have
U	capabilities of these resources.	
	 I acknowledge that ANS CloudFormation might I acknowledge that ANS CloudFormation might 	create LAM resources with castom names. require the following casability:
	CAPABILITY_AUTO_ISPAND	
		Canada Analanta Canada Canada Anala
		Carlos Previous China Carlos Carlos

Check the two items in the red frame in ①. Day: Click 'Create Stack'in the red frame in ②. If there are no errors, creation will begin.

2.2.4.11 Step.9

AWS Services - Resource Groups -	φ	Tokyo 👻 Support 👻
CloudFormation > Stacks > MIJIN-CATAPULT-TEST-	RIAL1	
C Stacks (2)	MIJIN-CATAPULT-TEST-TRIAL1 Delete Update Stack actions Create stack	
Active v View nested	Stack info Events Resources Outputs Parameter	s Template Change sets
NESTED MIJIN-CATAPULT-TEST-TRIAL1-mijinNestStack-X BNUHF1074P 2020-08-19 10:00:04 UTC+0900 CREATE_IN_PROGRESS	Events (1) Q Search events	C
MIJIN-CATAPULT-TEST-TRIAL1 2020-08-19 09:59:57 UTC-0900 ① CREATE_IN_PROGRESS	Timestamp v Logical ID Status	(O) Status reason
	2020-08-19 09:59:57 MIJIN-CATAPULT- UTC+0900 TEST-TRIAL1 GRESS	User Initiated
🗨 Feedback 🔇 English (US)	© 2008 - 2020, Amazon Web Services, Inc. or its affiliates.	All rights reserved. Privacy Policy Terms of Use

Confirm that Stack has started and is in 'CREATE_IN_PROGRESS'state. This state will take approximately 15~20 minutes.

2.2.4.12 Step.10

G Stacke (2)	MIJIN-CATAPUL	T-TEST-TRIA	L1	
	Delete Update	Stack actions 🔻	Create stack 🔻]
Active View nested	Stack info Events	Resources Out	puts Parameters	Template Change sets
NESTED MIJIN-CATAPULT-TEST-TRIAL1-mijinNestStack-X BNUHF1074P	Events (5)			[
2020-08-19 10:00:04 UTC+0900 CREATE_IN_PROGRESS	Q Search events			
MJJIN-CATAPULT-TEST-TRIAL1 2020-08-19 09:59:57 UTC+0900 ⊘ CREATE_COMPLETE	Timestamp 🔻	Logical ID	Status	Status reason
	2020-08-19 10:10:44 UTC+0900	MIJIN-CATAPULT- TEST-TRIAL1	⊘ CREATE_COMPL ETE	
	2020-08-19 10:10:42 UTC+0900	mijinNestStack	O CREATE_COMPL ETE	
	2020-08-19 10:00:05 UTC+0900	mijinNestStack	CREATE_IN_PRO GRESS	Resource creation Initiated
	2020-08-19 10:00:03 UTC+0900	mijinNestStack	CREATE_IN_PRO GRESS	
	2020-08-19 09:59:57	MIJIN-CATAPULT-	CREATE_IN_PRO	User Initiated

If the status is 'CREATE_COMPLATE', the creation of mijin is complete.

2.2.4.13 Step.11

🗆 Stacks (2)	MIJIN-CATA	PULT-TEST-TRIAL1			
Q MIJIN-CATAPULT-TEST-TRIAL1 X	Delete	late Stack actions 🔻 Create stack 🔻			
Active View nested	Stack info E	vents Resources Outputs Parameter	s Ten	nplate Change	sets
NESTED MIJIN-CATAPULT-TEST-TRIAL1-mijinNestStack-X BNUHF1074P	Outputs (4)				
2020-08-19 10:00:04 UTC+0900 () CREATE_IN_PROGRESS	Q Search output	2			
MIJIN-CATAPULT-TEST-TRIAL1					
2020-08-19 09:59:57 UTC+0900 CREATE_COMPLETE	Key 🔺	Value	⊽	Description \triangledown	Exp nan
	chainHeight	http://54.168.116.90:3000/chain/height			
	emptyAddress	https://ap-northeast-1.console.aws.amazon.com/sy manager/parameters/MUJIN-CATAPULT-TEST- TRIAL1/shares/nemesis_addresses.json	stems-		
	harvestAddress	https://ap-northeast-1.console.aws.amazon.com/sy manager/parameters/MIJIN-CATAPULT-TEST- TRIAL1/shares/nemesis_addresses_harvesting.json	stems-		
	mijinEndpoint	http://54.168.116.90:3000		mijin Catapult	

Press 'Outputs' of the created Stack to see the created mijin configuration information.

	mijinEndpoint
	mijinの API エンドポイントです。
 ・・ <li< th=""><th></th></li<>	
{"beight" [56"]	
	chainHeight
	mijinの現在のフロック数の確認かできます。フロック数か「2」以上にな
	っていることを確認してください。
2015 Barrissi = Pleasant Groups = \$ Δ Targe = Lagest = 2015 Statute Barrissi > Pleasant Groups = \$ Δ Targe = Lagest =	
/MUIN-CATAPULT-TEST-TRIAL1/shares/nemesis_addresses_harvesting.json tem tente	
Constant Managery Tage	
1000 Cocyclan Arkin GUAN (7551 TMA) / Annyhometa, addrese, Jarvesing Jon - Tar Eduk Ivan	
Tele Lue notified corr	
2019 amondo MARI LINETTS Issues et also MARIA LINET, TESTI TIRE, Lingle- APD Galaciante International-International-International- Mark Annual Science International- Mark Annual Science International- Mark Annual International Internatione International International International International Interna	
Vice C	
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Freeders 2 English (A) 63308-2001, Instancials Servine, Int. or its officers and processes. Priory Priory Times of the	harvestAddress
	AWS Systems Manager パラメータストアに登録された、基軸诵貨(トライ
	\mathbb{Z} Libort \mathbb{Z} 2000 cat currency) \mathcal{E} \mathcal{E} \mathbb{Z} \mathcal{E} \mathcal{E} \mathcal{E} \mathcal{E} \mathcal{E} \mathcal{E}
395 Sardian - Passan Stans - 5 (). 1990 - Jan -	
Add System Reverse 1 Provide State (SARD-GARD-STSC-Rest-Advancements, addressing and 1) Connew	
/MDIN-CATAPOLI-IEST-IRIALT/snares/nemesis_addresses.json	
Overview History Tage	
Danielie Milery Topi MMR Milery Topical MMR Milery Topical	
Network Network VMM File	
Name Name Performant Name	
Name Name View	
Name Name Name	
Name Name Name	
Name Name Name Nam Name Name <td></td>	
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Note Note International State St	
Num Num Num	
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Number Number	
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Image: Description: Image: Description: Imag	
Image: Description: Image: Description: Imag	
Note: Note: Note:	
Image:	omatu/Address
	emptyAddress
	emptyAddress A link to an unused address registered in the AWS Systems Manager pa-
	emptyAddress A link to an unused address registered in the AWS Systems Manager pa- rameter store.
	emptyAddress A link to an unused address registered in the AWS Systems Manager pa- rameter store.

Table 10: mijin エンドポイント確認項目(トライアル)

You are now ready to use mijin Catapult. Let's start the operation in the next section!

2.2.5 AWS MarketPlace Technical Documentation

Add various technical documents in AWS MarketPlace.

2.2.5.1 AWS Marketplace Cloudformation Parameter Comparison Table

This chapter describes the parameters and default values for deploying mijin Catapult(v.2) in AWS Marketplace.

The two commercial versions and the trial version have different default values.

Cloudformation Parameter Comparison Table

			la	ble 11: Tr	al / Product 設定一	<u>-</u> 覧			
N	o Cate- gories	Configuration Name	Description	set value (e.g. of a func- tion, pa- ram- eter, etc.)	Limits	Trial setting available	Trial デフ ォルト値	Product NewVPC デフォルト 値	Product Ex- istsVPC デ フォルト値
1	VPC Con- fig- ura- tion	ServiceName	Specify the name of the service that will be the crown name of the resource.	String	記 号 始 ま り NG、大文字小 文字英数字、ダ ッシュ(-)使 用可能	0	MIJIN- CATAPULT	MIJIN- CATAPULT	MIJIN- CATAPULT
2		Availability- Zone1	Specify the AZ to be used in the VPC.	List	Region's AZ	0	Region- dependent	Region- dependent	•
3		Availability- Zone2	Specify the AZ to be used in the VPC (specify different from AZ1)	List	Region's AZ	•	Region- dependent	Region- dependent	•
4		VPC	Specifies a VPC Id that already exists.	List	VpcId in the re- gion	•	•	•	0
5		VpcCidrBlock	Specify IP range of VPC (e.g., vpc-xxxx (xx.xx.xx.xx/16))	List	Regular ex- pression: (d{1,3}. {3}d{1,3}/d{1,2}	•	•	•	0
6		Public1	Specify the subnet of the public network (AZ1)	List		•	•	•	0
7		Public2	Specify the subnet of the public network (AZ2) (different from Public1)	List		•	•	•	0
8		Private1	Specify subnet for non- public network (AZ1)	List		•	•	•	0
9		Private2	Specify a subnet for the private network (AZ2) (different from Private1)	List		•	•	•	0
10		InternalDo- mainName	Specify an internal DNS name (e.g. mi- jin.internal)	String		•	•	mi- jin.internal	mi- jin.internal
11	Se- cu- rity Group Con- fig- ura- tion	PublicLoca- tionIP	Permitted IP range to connect to mijin end- points	String	Regular ex- pression: (d{1,3}. {3}d{1,3}/d{1,2}	0			

. .

continues on next page

			10010	11 0011		pugo			
No	o Cate- gories	Configuration Name	Description	set value (e.g. of a func- tion, pa- ram- eter, etc.)	Limits	Trial setting available	Trial デフ ォルト値	Product NewVPC デフォルト 値	Product Ex- istsVPC デ フォルト値
12	Node Con- fig- ura- tion	Default- UnixUser	EC2 remote login user name	String	"catapult"以 外	0	ubuntu	ubuntu	ubuntu
13	3	KeyName	SSH key used in EC2	List		0	Region- dependent	Region- dependent	Region- dependent
14	API Node Con- fig- ura- tion	ApiPlace- mentNetwork	API node placement (Public or Private)	List	Public, Private	•	•	Public	Public
15	;	Apilnstance- Type	API インスタンスのスペ ック	List	several	Δ	t3.large	t3.large	t3.large
16	5	ApiRootVol- umeSize	ルートボリュームの容量 (GB)	List	30, 100	•	30	30	30
17	,	ApiBlockVol- umeSize	ブロックデータ用のディ スク容量(GB)	List	50, 300, 500, 800,1000	•	50	500	500
18	3	ApiBlockVol- umelops	ブロックデータ用 IOPS (gp3)	List	3000, 5000, 10000	•	100	3000	3000
19)	ApiMongoVol- umeSize	MongoDB 用のディスク 容量(GB)	List	50, 300, 500, 800,1000	•	50	300	300
20)	ApiMongoVol- umelops	MongoDB 用 IOPS(gp3)	List	3000, 5000, 10000	•	300	3000	3000
21	PEER Node Con- fig- ura- tion	PeerNum- berOfUnits	PEER ノード台数(固定)	Int	3-10	•	•	3	3
22	2	PeerInstance- Type	PEER ノードのインスタ ンスタイプ	List		•	•	t3.large	t3.large
23	3	PeerRootVol- umeSize	PEER ノードのルートデ ィスク容量	List	30, 100	•	•	30	30
24	ŀ	PeerBlockVol- umeSize	PEER ノードのブロック データ用容量	List	50, 300, 500, 800,1000	•	•	500	500
25	;	PeerBlockVol- umelops	PEER ノードの IOPS (io1)	List	3000, 5000, 10000	•	•	3000	3000
26	6 mijin Con- fig- ura- tion	CatapultVer- sion	起動時の Catapult バー ジョン	List	v10037,v10038	Δ	v10038	v10038	v10038
27	,	Catapult- ShareMode	初期データ(アドレス等) の保存場所(SSM 推奨)	List	ssm	Δ	ssm	ssm	ssm
28	3	mijinDataDire- toryName	データマウント先のパス を指定	String	絶対パス	•	/mnt/mijin	/mnt/mijin	/mnt/mijin
29)	CatapultNet- work	mijin のネットワークタ イプ	List	mijin, mijin- test	Δ	mijin-test	mijin	mijin
30)	Catapult- BlockGener- ationTarget- Time	ブロック生成間隔(目安)	List	5s, 15s, 30s, 60s		60s	15s	15s
31		CatapultEffec- tiveFee	トランザクション手数料 有無	Boolea	n Yes, No	•	Yes	No	No
32	2	Max- CosignedAc- count	最大連署アカウント数	List	25, 50, 100, 1000	•	25	25	25

Table 11 - continued from previous page

continues on next page

No	o Cate- gories	Configuration Name	Description	set value (e.g. of a func- tion, pa- ram- eter, etc.)	Limits	Trial setting available	Trial デフ ォルト値	Product NewVPC デフォルト 値	Product Ex- istsVPC デ フォルト値
33		Finalization- Type	ファイナライズ方式		Deterministic, Probabilistic	•	Determin- istic	Determin- istic	Determin- istic
34		MaxTransac- tionperBlock	ブロック内最大トランザ クション数	List	6'000, 10'000, 20'000, 50' 000, 100'000	•	6'000	6'000	6'000
35		RestThrottring	API 接続数(バースト時 +100)	List	30tps, 100tps, 200tps, 500tps, No- Limit	•	30tps	30tps	30tps
36		Unconfirm- CacheSize	未承認トランザクション のキャッシュサイズ	List	Small, Medium, Large	•	Small	Small	Small
37	Load- Bal- ancer Con- fig- ura- tion	UseLoadBal- ancer	NLB を使用するか	Boolea	n Yes, No	•	•	Yes	Yes
38		LoadBalancer- Type	NLB の配置場所	List	external, internal	•	•	external	external
39	Other	mijinStack- AlreadyExist	他スタックが存在するか の指定	Boolea	ı Yes, No	•	•	No	No

Table 11 - continued from previous page

2.2.5.2 AWS MarketPlace Cloudformation Specifications

The AWS MarketPlace service, mijin Catapult(v.2), is deployed using Cloudformation, an orchestration tool.

This chapter describes the AWS resources created using Cloudformation.

The Cloudformation Template (CFT) consists of multiple files, where the parent Stack calls each of its child Stacks. The child Stacks to be invoked depend on the parameters of the parent Stack.



macroNestStack

macroNestStack creates a Cloudformation Macro. If the parameter mijinStackAlreadyExist is Yes, a stack that does not create a Macro will call (empty-macro). This is because the Cloudformation Macro is created with a unique name, so it is not possible to create multiple Macro's with the same name.

Macro is created in Lambda (Node.js) and converts the CFT of mijinNestStack that comes after this by specified parameters.

Assign the following IAM roles and policies to allow the created Lambda to read and write to Amazon CloudWatch Logs.

```
Resources:

PeerUnitsExecutionRole:

Type: 'AWS::IAM::Role'

Properties:

AssumeRolePolicyDocument:

Version: 2012-10-17

Statement:

- Effect: Allow

Principal:

Service:

- lambda.amazonaws.com
```

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The Cloudformation Macro is created in Lambda (Node.js) and converts the CFT of the mijinNestStack that follows by the specified parameters. The Macro can replicate the stack of EC2 instances and dynamically change the EC2 instances to be launched, depending on the number of the parameter PeerNumberOfUnits.

Warning:

To create multiple mijin Catapult(v.2) in the same region, mijinStackAlreadyExist must be YES.

vpcNestStack

vpcNestStack creates a new VPC. A multi-AZ environment is created, with public and private subnets placed in each AZ. The default gateway for private network routing can also go out to the Internet using the Nat Gateway placed on the public network in the same AZ.



Note: This stack is not used when deploying mijin in an existing network.

iamNestStack

iamNestStack creates IAM roles and the IAM policies associated with them for use by EC2 instances.

The following are roles to be assigned to each API node and PEER node.

```
AWSApiAccessRole:
Type: 'AWS::IAM::Role'
Properties:
AssumeRolePolicyDocument:
Version: 2012-10-17
Statement:
- Effect: Allow
Principal:
Service:
- ec2.amazonaws.com
```

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```
Action:
            - 'sts:AssumeRole'
    Path: /
AWSPeerAccessRole:
  Type: 'AWS:::IAM::Role'
  Properties:
    AssumeRolePolicyDocument:
      Version: 2012-10-17
      Statement:
        - Effect: Allow
          Principal:
            Service:
              - ec2.amazonaws.com
          Action:
            - 'sts:AssumeRole'
    Path: /
```

Grant permissions to AWS Systems Manager Session Manager

AWS Systems Manager Session Manager grants privileges to EC2 instances to allow remote login with IAM privileges and ties them to IAM roles.

```
AWSSSMRolePolicies:
  Type: 'AWS:::IAM::Policy'
 Properties:
    PolicyName: AWSSSMAccessPolicy
    PolicyDocument:
      Version: 2012-10-17
      Statement:
        - Effect: Allow
          Action:
            - 'ssm:DescribeAssociation'
            - 'ssm:GetDeployablePatchSnapshotForInstance'
            - 'ssm:GetDocument'
            - 'ssm:GetManifest'
            - 'ssm:GetParameters'
            - 'ssm:ListAssociations'
            - 'ssm:ListInstanceAssociations'
            - 'ssm:PutInventory'
            - 'ssm:PutComplianceItems'
            - 'ssm:PutConfigurePackageResult'
            - 'ssm:UpdateAssociationStatus'
            - 'ssm:UpdateInstanceAssociationStatus'
            - 'ssm:UpdateInstanceInformation'
          Resource: '*'
        - Effect: Allow
          Action:
            - 'ssmmessages:CreateControlChannel'
            - 'ssmmessages:CreateDataChannel'
            - 'ssmmessages:OpenControlChannel'
            - 'ssmmessages:OpenDataChannel'
          Resource: '*'
```

Grant read/write permissions to AWS Systems Manager Parameter Store.

The AWS Systems Manager parameter store stores dynamically generated data for the first node of mijin Catapult(v.2), grants permissions that can be referenced by each of the other nodes, and ties them to IAM roles.

```
AWSPSAccessRolePolicies:
Type: 'AWS::IAM::Policy'
Properties:
PolicyName: AWSPSAccessRole
PolicyDocument:
Version: 2012-10-17
Statement:
- Effect: Allow
Action:
- 'ssm:PutParameter'
- 'ssm:GetParametersByPath'
```

Grant Security Token Service (STS) from the resource of the same account same service name IAM role and link the IAM role.

With the STS granted, the AWSApiAccessRole and AWSPeerAccessRole IAM roles can operate the AWS services specified in the policy.

```
AWSAssumeAccessRolePolicies:
  Type: 'AWS::IAM::Policy'
  Properties:
    PolicyName: AWSAssumeAccessRole
    PolicyDocument:
      Version: 2012-10-17
      Statement:
        - Effect: Allow
          Action:
            - 'sts:AssumeRole'
          Resource:
            - Fn::Join:
                    - 1:1
                      - 'arn:aws:iam:'
                      - Ref: 'AWS::AccountId'
                      - !Sub "role/${ServiceName}*"
    Roles:
      - !Ref AWSApiAccessRole
      - !Ref AWSPeerAccessRole
```

s3NestStack

Warning: This feature is currently disabled and only the parameter store can be saved.

s3NestStack allows you to choose whether to place mijin data in the AWS Systems Manager parameter store or in an S3 bucket, and if you choose S3, it creates an S3 bucket.

mijinNestStack

mijinNestStack creates private DNS, security groups, EBS, and EC2 instances with Route53.

mijin uses DNS names to communicate between each EC2 instance. The domain is fixed at mijin.internal, and each instance name is set to the A record as follows.

- 1. api1.mijin.internal
- 2. api2.mijin.internal
- 3. peer1.mijin.internal
- 4. peer2.mijin.internal
- 5. peer3.mijin.internal
- 6. peer4.mijin.internal
- 7. peer5.mijin.internal
- 8. peer6.mijin.internal
- 9. peer7.mijin.internal
- 10. peer8.mijin.internal
- 11. peer9.mijin.internal

Security groups are applied below, with the minimum security group used for communication as shown in the image.

Security group name	Description
attach-ssm_ssh-client	This security group can be set up as a stepping stone, etc. to allow SSH login. It is not used for new VPCs. (If created for an existing VPC, assign it to an existing stepping stone, etc.)
attach-node-client	For inter-node communication.
sv-api	This is for API nodes. 3000 port / for REST access. 7900 / For mijin node communication.
sv-peer	For PEER node. 7900 port / for mijin node communication.



Since EBS stores mijin's data area, two EBSs are attached to the API node in addition to the root partition, and one EBS is attached to the PEER node.

VolumeType is fixed GP3 and no disk encryption.

The EBS is designed to be XFS formatted and disk mounted using cloud-init only when the EC2 instance is built for the first time.

The mijin data is stored in block, the API node stores the block and the mongo data used by rest, but can restore the mongo data if there is data in block.



The EC2 instance is started using a custom AMI with the mijin package installed. UserData runs cloudinit and executes the initial package configuration. It receives the results of the UserData execution and rolls back if the configuration fails.

- 1. Unix user settings specified by parameter
- 2. Host Name Settings
- 3. OS package updates
- 4. Installing pip
- 5. Installing cloudformation helper script
- 6. Setup of mijin
 - 1. EBS Format
 - 2. mijin setup (api1 uploads data to parameter store)

In addition, the order in which instances are created is as follows

- 1. Apilnstance1
- 2. ApiInstance2 PeerInstanceX Concurrency

At ApiInstance1, create the configuration to be used for all nodes and store the data in the AWS Systems Manager parameter store. Other instances will retrieve data from this parameter store and create mijin.

The contents stored in the parameter store are as follows

Parameter name	Description	
/Crown name specified at deploy time/shares/api_node.json	Public key used by the API node	
/Crown name specified at deploy time/shares/generation_hash.json	mijin Catapult(v.2) blockchain's Genesis Hash (GenerationHash)	
/Crown name specified at deploy time/shares/harvest_fee_sink_public_key	.j stud dress to receive Harvest (not required for mi- jin)	
/Crown name specified at deploy time/shares/init_host_count.json	Number of nodes created during deployment	
/Crown name specified at deploy time/shares/mosaic_rental_fee_sink_publicAdketyejssotro receive Mosaic rental fees		
/Crown name specified at deploy time/shares/namespace_rental_fee_sink_	p Abbicekætojsen eive Namespace rental fees	
/Crown name specified at deploy time/shares/nemesis_addresses.json	Empty address not used in particular (can be used)	
/Crown name specified at deploy time/shares/nemesis_addresses_harvesti	ngAjsoness to receive harvest, etc.	
/Crown name specified at deploy time/shares/nemesis_addresses_harvesti	ng <u>A</u> dvoltersg.juseed for authorization to finalize	
/Crown name specified at deploy time/shares/nemesis_addresses_harvesting_ddrf/jsses for enhanced security (to obscure the state in which blocks can be generated)		
/Crown name specified at deploy time/shares/peer_node.json	Public key used by the PEER node	
/Crown name specified at deploy time/shares/rest_gateway_private_key.jsonAddress for REST used by API node		
/Crown name specified at deploy time/shares/signer_private_key.json	Address to sign Nemesis (Genesis) block	
/Crown name specified at deploy time/shares/new-cert/each node/CA/[*].pem	SSL certificate to encrypt communications be- tween nodes	

Note:

The values in this parameter store are stored as the values to be created in the first block of the blockchain and are not called from the parameter store after deployment.

Therefore, if you want to delete data as security, etc., you can delete this data.

In addition, if there is a failure or a need for a new expansion, etc., the data can be recovered from this data.

loadbalanceNestStack

loadbalanceNestStack creates an ELB (load balancer).

If the parameter UseLoadBalancer is No, the stack (empty-elb) is called without creating the ELB.

The ELB distributes to the REST access port 3000 port of the API node.

The ELB Type uses NLB (Network Load Balancer) and the connection to the API node is configured to use the same node for a certain period of time for the same session by sticky session.

Note:

ELBs are created with Network Load Balancer (NLB) only. To understand the NLB, please refer to the following https://docs.aws.amazon.com/ja_jp/elasticloadbalancing/latest/network/introduction.html

```
TargetGroupAttributes:
    - Key: stickiness.enabled
    Value: 'true'
```

NLBs can be parameterized for inward placement for private use only or outward placement for connection via the Internet.



Health checks are performed on the REST access port 3000 of the API node under the following conditions

Health checks are monitoring http://API-NODE:3000/chain/info for dead/ alive.

```
Properties:

HealthCheckIntervalSeconds: 10 # 10 秒間隔でチェックする Check at 10-second intervals.

UnhealthyThresholdCount: 3 # 異常とみなす回数 Number of times considered abnormal

HealthyThresholdCount: 3 # 正常とみなす回数 Number of times considered normal

HealthCheckPath: /chain/info # ヘルスチェックをする URL URL for health check

HealthCheckProtocol: HTTP

Port: 3000 # ヘルスチェックポート health check port
```

2.2.5.3 AWS MarketPlace mijin Catapult(v.2) Recovery Strategy with Architectural Patterns

Deployed in AWS MarketPlace, mijin Catapult(v.2) has various architectural patterns depending on the parameters used for deployment.

In this chapter, you will learn architectural patterns and describe recovery strategies through disaster recovery and other BCP measures.

mijin Catapult(v.2) high availability and fault tolerance

mijin Catapult(v.2) keeps the same blockchain data on all nodes, so as long as there is at least one PEER node, the blockchain will continue to update. (Decentralized Fault Tolerance)

Blockchain is characterized by the fact that data is not stored in units of records, such as RDB, but is stored collectively in units of blocks.

Therefore, depending on the circumstances of the failure, the most recent blockchain data may not always be the most current and correct data.

The reason is that the block data of the blockchain is generated in the approximate number of seconds set during deployment, and is divided into nodes that generate blocks (harvesting nodes) and nodes that receive the generated blocks.

The nodes that create blockchain data are pruned by a consensus algorithm (Proof-of-Stake Plus), and the nodes that generate blocks (harvesting nodes) are pruned by a consensus algorithm (Proof-of-Stake Plus).

To learn more about the consensus algorithm, see Symbol's Document.

https://docs.symbol.dev/ja/concepts/consensus-algorithm.html

Although rewards through the block generation mechanism exist in mijin, they are not required in a private blockchain, so the reward process is only running functionally.

The following diagram shows the blockchain being generated by PEER3 and the blockchain data being sent to each node.



If a failure occurs in a situation where only PEER2 remains without receiving the block data generated from PEER3, there may be a difference of at least one block.

At that time, PEER2 cannot recognize PEER1 and PEER3, so it generates new blockchain data and turns into an independent node.

However, if PEER1 and PEER3 are recovered immediately, PEER3 with the correct block data is rolled back as positive and recovered to the normal blockchain data.

If all the API nodes are down, they cannot be accessed by programs, etc., but block generation will proceed as long as the PEER nodes are present.

Multi-AZ Recovery Strategy

Recovery Time Objective (RTO)	Almost 0
Recovery Point Objective (RPO)	Almost 0

Deploying in Marketplace mijin Catapult(v.2) deploys each node in a multi-AZ environment. Even if one AZ side fails, the distributed fault tolerance of mijin Catapult(v.2) allows the service to continue.

If you want to keep the connection to the API node, enable Elastic Load Balance to improve availability.



Multi-region and recovery strategies

Inter-region backup

Recovery Time Objective (RTO)	one day
Recovery Point Objective (RPO)	2 hours

All of the mijin Catapult(v.2) deployed in Marketplace can be recovered by backing up the blockchain data from one of the nodes.

Using AWS Backup, blockchain data on a node can be easily backed up to another region.

For backup instructions, see . /aws_tips_ebs_backup.

See below for information on how to restore until backed up.

https://docs.aws.amazon.com/ja_jp/aws-backup/latest/devguide/restore-resource.html



Consortium chain with active/active

Recovery Time Objective (RTO)	Almost 0
Recovery Point Objective (RPO)	Almost 0

Warning:

Manually build mijin in a separate region to achieve **0 downtime** by realizing a consortium chain. The following diagram shows an example, but since the construction procedure varies depending on the environment, we can provide paid support.

https://mijin.io/aws_contact/

The mijin Catapult(v.2) deployed on Marketplace can be located in 21 regions around the world, but there is no mechanism for building nodes across regions.

By manually building mijin nodes outside of the main region, a multi-region disaster recovery strategy can be established.

The API nodes are also installed together to form a consortium chain, which is an active/active configuration even between regions.



2.2.6 mijin Catapult(v.2) AWS configuration after deployment

This chapter describes how to configure the mijin Catapult(v.2) provided by AWS MarketPlace after deploying it.

2.2.6.1 mijin Catapult(v.2) EC2 instance login how to

This chapter describes how to log in to a node on mijin Catapult(v.2) on AWS.

mijin Catapult(v.2) is running on a Linux server, so this is the procedure for Linux login method. However, since AWS has 'Session Manager'that allows easy remote login from the management console, we set up remote login with Session Manager when deploying.

To learn more about Session Manager, please see below.

https://docs.aws.amazon.com/ja_jp/systems-manager/latest/userguide/session-manager.html

Note:

This chapter is an example of the login procedure to EC2 when deploying mijin Catapult(v.2) in AWS MarketPlace.

The connection can be established by changing the security group, etc. using SSH or other conventional remote login methods.

Log in to AWS Management Console

Log in at the AWS Managed Console https://aws.amazon.com/jp/console/

Move to EC2 Service

- 1. Click on 'Services' at the top
- 2. Click on 'Compute' from the menu that appears
- 3. Click on 'EC2.'



Select the instance you wish to log in to and connect

- 1. Click on 'Instances' from the left menu
- 2. From the list of instances, click the check box for the node you wish to log in.
- 3. Press 'Connect.'



Select Session Manager and connect

- 1. Make sure it is 'Session Manager.'(If not selected, click on it)
- 2. Press 'Connect.'
- 3. A separate console screen window opens.



Console screen operation

- 1. Confirm that '\$'appears in the console screen window.
- 2. mijin Catapult(v.2) switch to the UNIX user catapult running

sudo su - catapult

3. Check to see if mijin Catapult(v.2) is working.

```
# PEER ノードに接続した時 (本章では PEER ノード接続時) When connected to a PEER
node (in this chapter, when connected to a PEER node)
cd mijin-catapult-package/package/peer/catapult/
docker-compose ps
# API ノードに接続した時 When connected to an API node
cd mijin-catapult-package/package/api/catapult/
docker-compose ps
```



Note:

mijin Catapult(v.2) runs as one of the containers on docker. Knowledge of docker is required for operation. For knowledge of Docker, please refer to the following documents https://docs.docker.jp/ Official (English) https://docs.docker.com/get-started/overview/

2.2.6.2 mijin Catapult(v.2) encryption of node storage

This chapter describes the storage encryption used on the nodes of mijin Catapult(v.2) on AWS.

At the time of deployment, the EBS volumes mounted by each node are not encrypted. To make it more secure, blockchain data and Mongo data can be encrypted. This section describes the procedure for encrypting the EBS volume that contains mijin Catapult(v.2) using PEER node 3 as an example.

Flow of encrypting a node's blockchain data

- 1. Create KMS Key
- 2. Stop one of the nodes. (In the production version, availability is maintained even if one node is stopped.)
- 3. Obtain a snapshot of a stopped node
- 4. Create an encrypted snapshot by copying the snapshot created in 3.
- 5. Create a volume from the encrypted snapshot created in step 4.
- 6. Detach the volume of blockchain data on the PEER node stopped in 2.
- 7. Attach the volume created in step 5 to the PEER node stopped in step 2
- 8. Start the PEER node stopped in 2.

Note: The same process is followed on the API node, but in the case of the API node, the mongo data is also mounted, so the two volumes can be encrypted.

Create KMS Key

To encrypt storage, use KMS to create encryption keys. To learn more about key creation with KMS, please refer to the following https://docs.aws.amazon.com/ja_jp/kms/latest/developerguide/create-keys.html

	aws Services Q Search	[Alt+S]
	Recently visited Serv Favorites All services	Security, Identity, & Compliance × AWS Artifact Security compliance reports and agreements
	Custo Custo Custo Supplication Integration AWS Cost Management Blockchain Disness Applications Custo	AWS Audit Manager Continuously assess controls for risk and compliance Certificate Manage Provision, Manage, and Deploy SSL/TLS Certificates CloudHSM Managed Hardware Security Modules in the Cloud
	Compute Containers Containers Containers Customer Enablement Database X Developer Tools I user Computing Tools	Cognito Consumer Identity Management and AWS Gredentials for Federated Identities Detective Investigate and analyze potential security issues Directory Service Host and Manage Active Directory
	Front-end Web & Mobile For Game Development For Game Developmen	AWS Firewall Manager Central management of firewall nules GuardDuty Intelligent Threat Detection to Protect Your AWS Accounts and Workloads IAM Manage access to AWS resources
	Programme and the function Proversing & Content Delivery & Quantum Technologies & Robotics Robotics Satellite Security, Identity, & 	IAM Identity Center (successor to AWS Single Sign-On) Manage workforce user access to multiple AWS accounts and cloud applications Amazon Inspector Continual valuerability management at scale Key Management Service Securely Generate and Manage AWS Encryption Keys
From Services, click Security, Identity, & Compliance, then Key Management Service.	Compliance	Amazon Macie Amazon Mucie classifies and secures your business-ortical content.
	Key Management Service (KAS) XHS > Costamer managed AWS managed keys Costamer managed keys AWS Cloud: Key stores AWS Cloud: Key stores Extendit key stores kew CHS > Costamer managed	keys keys (3) Key actions ▼ Coreta key a or tops 0 matches 1) © tter Key ID ▼ Status Key spec © Key usage No matches No reaches No reaches
Click on a 'Customer managed keys'and click on 'Cre- ate Key'.		Liear nive

	KMS > Customer managed keys >	> Create key
	Step 1	Configure kov
	Configure key	
	Add labels	
	Define key administrative permissions Step 4 Define key usage permissions	Symmetric Asign the susce for encrypting and decrypting data or generating and ventyling MMAC code: Application of private key pair used for encrypting and decrypting data or signing and ventyling messages
	Step 5 Review	Key usage Help me cheese 🔁
		Encrypt and decrypt Use the key only to encrypt and decrypt data. Generate and verify MAC Use the key only to generate and verify hack-based message authentication code (IPBMC).
		Advanced options
Set any name for the alias and click 'Next'.		Cancel Next
	KMS > Customer managed keys >	> Create key
	Step 1 Configure key	Add labels
	Step 2 Add labels	Alias
	Step 3 Define key administrative	You can change the allas at any time. Learn more
	Step 4	mijin-ebs_encrypt_key
	Step 5	Description - optional
	Keview	You can change the description at any time.
		Description - optional Description of the key
		Tags - optional
		You can use tags to categorize and identify your KMS keys and help you track your AWS costs. When you add tags to AWS resources, AWS generates a cost allocation report for each tag. Learn more 🗹
		Add tag
		You can add up to 50 more tags.
Specify a key name (alias) and click 'Next'.		Cancel Previous Next
	KMS > Customer managed keys 3	Create key
	Configure key Step 2	Define key administrative permissions
	Add labels	Key administrators Choose the IAM users and roles who can administer this key through the KMS API. You may need to add additional permissions for the users or roles to administer this key from this console. Learn more [2]
	Define key administrative permissions	Q < 1 2 3 4 5 6 7 8 9 >
	Step 4 Define key usage permissions	E Name V Path V Type V
	Step 5 Review	/ User
		User
		/ User
		✓ / User
		User
		U User
		/ User
		Key deletion
		Allow key administrators to delete this key.
		Cancel Previous Next
Select your own account as the key administrator and		
curck Next . (In this case, specify the account you are currently logged in to)		

	inte State and the State	A develop loss
	KMS > Customer managed keys ; Step 1	> Create key
	Configure key	Define key usage permissions
	Step 2 Add labels	This account Select the IAM users and roles that can use the KMS key in cryptographic operations. Learn more 🕑
	Step 3 Define key administrative permissions	Q. < 1 2 3 4 5 6 7 8 9 >
	Step 4	■ Name ∇ Path ∇ Type \checkmark
	permissions	User
	Step 5 Review	/ User
		/ User
		/ User
		/ User
		/ User
		User
		User
		Other AWS accounts
		Specify the AWS accounts that can use this key. Administrators of the accounts you specify are responsible for managing the permissions that allow their IAM users and roles to use this key. Learn more \mathbb{Z}
		Add another AWS account
		Cancel Previous Next
and click 'Next'. (In this case, specify the account you are currently logged in to)		
	KMS > Customer managed keys >	Create key
	Step 1 Configure key	Review
	Step 2 Add labels	Key configuration
	Step 3 Define key administrative	Key type Key spec Key usage
	Step 4	Symmetric SYMMETRIC_DEFAULT Encrypt and decrypt Origin Regionality AWS KMS Single-Region key
	Step 5 Review	O You cannot change the key configuration after the key is created.
		Alias and description
		Allas Description mijin/ebs_encrypt_key -
		Tags
		Key Value
		No data No tags to display
		Key policy To change this policy, return to previous steps or edit the text here.
		<pre>{ T3': "key-consolepolicy-3", "Version": "202-10-13", "Statement": [</pre>
		<pre>sat cmoust we new remains.ons., reffect: failer, ""bincipal"; {</pre>
		15 "Sid": "Allow access for Key Administrators".
Confirm the values and click 'Finish'.		Cancel Previous Finish

Stop one of the nodes

Stopping one PEER or API node will not stop the mijin Catapult(v.2) blockchain network. Here, we stop at PEER node 3 as an example.

Log in to PEER node 3.	. /aws_tips_ssm_login and log in to the node.
	<pre>v sudo su - catapult catapult@peer1:-\$ catapult@peer1:-\$ catapult@peer1:-/mijin-catapult-package/package/peer/catapult} catapult@peer1:-/mijin-catapult-package/package/peer/catapult\$ docker-compose ps Name Command State Ports catapult_peer-node_1 bash -c /bin/bash /scripts Up 0.0.0.0.07900->7900/tcp catapult_peer1:-/mijin-catapult-package/package/peer/catapult\$ docker-compose down Stopping catapult_peer-node_1 done Removing catapult_peer-node_1 done Removing network catapult_default catapult@peer1:-/mijin-catapult=package/package/peer/catapult\$ docker-compose ps Name Command State Ports</pre>
	catapult@peer3:-/mijin-catapult-package/package/peer/catapult\$ catapult@peer3:-/mijin-catapult-package/package/peer/catapult\$ exit logout
	\$ sudo shutdown -h now
mijin Catapult(v.2) and stop the EC2 instance.	
<pre>sudo su - catapult cd mijin-catapult-package/</pre>	
sudo shutdown -h now	

Obtain a snapshot of a stopped node

To create an encrypted volume, you must first create a snapshot of the target volume.

	MUIN-CATAPULT-peer3 i-089	82d6d8b7a2b560 ⊖ Stopped @@ t4g.large - No ali
	MUIN-CATAPULT-peer1 I-003	78b62c6f296b03 ⊘ Running @@ t4g.large ⊘ 2/2 checks passed No ali
	MUIN-CATAPULT-api2 i-069	adcefc5666a4de 🛛 🛛 Running 🔍 😋 t4g.large 📿 2/2 checks passed No ali
	MUIN-CATAPULT-api1 i-055	5de2cecf475348 ② Running ④ ④ t4g.large ② 2/2 checks passed No ali
	N	
	Instance: I-08982d6d8b7a2b560 (MIJIN-CATAPULT-pee	(3) © X
	Details Security Networking Storage Status che	cks Monitoring Tags
	▼ Root device details	
	Root device name Root device ty //dev/sda1 EBS	pe EBS optimization disabled
	Block devices	
	Q. Filter block devices	
	Volume ID Device name Volume size (5iB) Attachment status Attachment time Encrypted KMS key ID
	vol-0723249ce9a36831c /dev/sda1 30	⊘ Attached Tue Jan 17 2023 15:29:09 G No –
	vol-09cba65914936dfae /dev/sdf 500	⊘ Attached Tue Jan 17 2023 15:29:09 G No -
Select the stopped PEER node 3, click the Storage tab,		
and click the target volumeId.		
Here, the volumeId and device name (/dev/sdf)		
should be noted		
should be noted.		
	Volumes (1/1)	C Actions ▲ Create volume
	Q Search	Create snapshot
	Volume ID = Volume ID T Troe T	Create snapshot lifecycle policy
	 volume ib volume ib rype vol-09cba65914936dfae gp3 	Size O IOPS O Delete volume 500 GiB 3000 2023/01/17 15:29
		Attach volume Detach volume
		Force detach volume
		Manage auto-enabled I/O
Click the check box for the target volume and click 'Cre-		Manage tags
ate snapshot'		
	Volume ID: vol-09cba65914936dfae	
	Details Status checks Monitoring Tags	
	Details	
	Volume ID Size	Type Volume status
	🗇 vol-09cba65914936dfae 🎁 500 GiB	gp3
	AWS Compute Optimizer finding Volume state	IOPS Throughput 3000 125
	or recommendations. Learn more 🗹	123
	Encryption KMS key ID	KMS key alias KMS key ARN
	Soanshot Availability Zone	Created Multi-Attach enabled
	- ap-northeast-1a	① Tue Jan 17 2023 15:29:09 No
	Attached Instances Outposts APN	Give 140200 (CD-9498)(5113)
	i-08982d6d8b7a2b560 (MJIN-	
We will now check which availability zone this volume	CATAPULI-peers): /dev/sdt (attached)	
helongs to		
	EC2 > Volumes > vol-09cba65914936dfae > 0	reate snapshot
	Create spanshet	
	Create a point-in-time snapshot to back up the data of	n an Amazon EBS volume to Amazon S3.
	Details	
	Volume ID	
	Description	
	Add a description for your snapshot	
	peer3-block-20230117	
	255 characters maximum.	
	Encryption Info	
	Not encrypted	
	A tag is a label that you assign to an AWS resource. Each ta	g consists of a key and an optional value. You can use tags to search and filter
	your resources or track your AWS costs.	
	No tags associated with the resource.	
	Add tag	
	You can add 50 more tags.	
		Consul Constanting of the
		Cancel Create shapshot
Provide a name in the description that is easy to under-		
stand when searching, and click 'Create snapshot'.		-

Create an encrypted snapshot by copying the created snapshot

To create encrypted volumes from encrypted snapshots, encryption is performed when the snapshots are copied.

	Operating Sector Sect
	Hann Hann
Click Snapshot in the menu, check the snapshot you created, and click 'Copy snapshot'.	
	EC2 > Snapshots > snap-08264fdb3430e5570 > Copy snapshot Copy snapshot info Copy a snapshot from one AWS Region to another, or within the same Region.
	Settings Support ID The main subject that is to be updated. Improve subject that is to be updated. Improve subject that is to be updated. Support Subject that is to be updated. Improve subject that is to
For the destination region, select the same region as the node from which the snapshot was taken. Check the 'Encrypt this snapshot'and specify the KMS created. Click on 'Copy Snapshot.'	
	O screte/My consol sequence corps parts (2005/25/6512/6512/6512/6512/6512/6512/6512/
Make sure the snapshot has been completed.	

Create a volume from an encrypted snapshot

Create encrypted volumes from encrypted snapshots. At this point, a volume is created that has not yet been mounted.

	⊘ Successfully created snapshot copy <u>snap-088dct398475i6118</u> .
	Snapshots (1/2)
	Conned by me Q Search Create volume from supplied Out of the search Create volume from supplied Out of the search
	Image:
	- snap-08bdx4398475x6128 500 GiB [Copied snap-08264fdb34 Standard ② Completed Nenage fast snapshit restore valial
	- snap-08264db5450e5570 500 G/B peerl-block-20230117 Standard ② Completed Archive snapshot stallad
	Change restore puriod
	Delete snapshot Mensee her
	rungs ugs
Click on the encrypted snapshot and click 'Create volume	
from snapshot'.	
	EC2 > Snapshots > snap-08bdc4398475e6128 > Create volume
	Create volume Info
	Create an Amazon EBS volume to attach to any EC2 instance in the same Availability Zone.
	Volume settings
	Snapshot ID
	D snap-08bdc4398475e6128
	Volume type Info
	General Purpose SSD (gp2)
	SUU Min: 1 GIR May: 16384 GIR. The value must be an intener
	The state of the s
	IOPS
	Baseline of 3 IOPS per GiB with a minimum of 100 IOPS, burstable to 3000 IOPS.
	Throughput (MiR/s) Infe
	Not applicable
	August Marc 7 and 1 and
	Availability zone into
	Fast snapshot restore Info
	Not enabled for selected snapshot
	Encryption Infe
	Use Amazon EBS encryption as an encryption solution for your EBS resources associated with your EC2 instances.
	C Encrypt this volume
	KMS key Info
	mijin/ebs_encrypt_key
	KMS key description
	KMS key owner
	KMS kay ID
	☐ f40d4fa2-84b5-40f4-bd5c-f54583f19335
	KMS key ARN
	arn:aws:kms:ap-northeast-1 key/f40d4fa2-84b5-40f4-bd5c-
	f54583f19335
	1 Volumes that are created from encrypted snapshots are automatically encrypted using the same key as
	the snapshot, or using a different key that you specify. Volumes that are created from unencrypted
	snapshots are automatically unencrypted, but you can choose to encrypt them using a specific key. If no snapshot is selected, you can choose to encrypt the volume and specify your own key. Learn More [2]
	, in the second se
	Tags - optional use
	A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter
	your resources or track your AWS costs.
	No tags associated with the resource.
	Add tag
	You can add 50 more tags.
	Cancel
Select the availability zone as the same availability zone as	
the node from which the snapshot was taken.	
Select the KMS key you created	
Click on (Croate volume '	
Click off Credle volume.	

Note:

Note that if you select a different availability zone than the node here, the volume will not appear when attached to the node.

Check Obtain a snapshot of a stopped node for availability zone confirmation of the node. If you would like to understand availability zones, please refer to the following

https://docs.aws.amazon.com/ja_jp/AWSEC2/latest/UserGuide/using-regions-availability-zones. html#concepts-availability-zones

Detach the volume of blockchain data on the stopped PEER node

Remove any unencrypted volumes attached to the node.

	Instances (1/5) Info C Connect Instance state • Actions • Launch Instances •
	Q, Find instance by attribute or tag (case-sensitive) < 1 > (2)
	MUIN-CATAPULT X Clear filters
	■ Name ▼ Instance ID Instance state ♥ Instance type ♥ Status check Alarm status
	MUIN-CATAPULT-peer3 i-08982d6d8b7a2b560
	MUIN-CATAPULT-peer2 i-0cf94s69:97s84a06 ⊘ Running @Q t4g.large ⊘ 2/2 checks passed No alarms
	□ MUIN-CATAPULT-peer1 i-00378b62c6f296b03 ⊘ Running @ Q t4g.large ⊘ 2/2 checks passed No alarms
	□ MUIN-CATAPUET-api2 i-069adcefc5666a4de ⊘ Running @,Q, t4g.large ⊘ 2/2 checks passed No alarms
	□ MUJIN-CATAPULT-api1 i=0555de2cecf475348 ⊘ Running @@ t4g.large ⊘ 2/2 checks passed No alarms
	1
	=
	instance. Possoziodobrazisto (Pisin-CKIAP oLi-peels)
	Details Security Networking Storage Status checks Monitoring Tags
	▼ Root device details
	Root device name Root device type EBS optimization
	La los displeo
	▼ Block devices
	Q Eliter block devices
	Barn and an P
	Volume ID Device name Volume size (GiB) Attachment status Attachment time Encrypted KMS key ID
	V0E0/232490(9436651C /040/5041 50 @ Actached 106/50117/202315/2939.0 NO -
	vol.092bd5514936dfae /dev/yda1 50 O Attached Tue Jan 17 2023 15:25:09 G No -
	Visit 01/2504(8195083) /vervsiant 30 Ø initialisma real initialisma real initialisma initiali
	text / Londontestants / Javanuel av Ox Autobale ine Jan 17 July 3 152509 fui nov - vel 056456351453568a /den/adf 500 OA Attached Tex Jan 17 July 3 152509 fui nov - /den/adf /d
	Noticity 2004/05/05/05/1 Jump Your 1 Supervision Impact Your 1 Supervision Impact Your 2 Impac Your 2 Impact Your 2 Impa
Select the volume from PEER node 3 again.	Vol.07 J20H065031631 provident 30 C and Long tray and 17 J20J2 152309 G No - Vol.09bbb659146956fee /dev/rdf 500 Attached Tile Jan 17 20J2 152309 G No -
Select the volume from PEER node 3 again.	Verol / London Statistics (km / km
Select the volume from PEER node 3 again.	Not-07_20nd(statistics) percent so C Audulate reg and 17 Aucs 15 2500 fb No - vol-05tba555146556fer /dev/xdf 500 Ø Attached Tue Jan 17 2023 152369 fb No -
Select the volume from PEER node 3 again.	Volumes (1/1) 72 Antennes 72 Antennes
Select the volume from PEER node 3 again.	Volumes (1/1) Q Actions a Create volume Volumes (1/1) Q Actions a Create volume
Select the volume from PEER node 3 again.	Volumes (1/1) Create solume Q. foreith Granth
Select the volume from PEER node 3 again.	Volumes (1/1) C rent volume Volumes (1/1) C Actions A Create volume Model Volumes (1/1) Volumes (1/1) C Actions A Create volume Model Volumes (1/1)
Select the volume from PEER node 3 again.	Volumes (1/1) C Actains Create volume Value 10 v Type v Through put If Name V dume 10 v Type v Actains
Select the volume from PEER node 3 again.	Volumes (1/1) C estate volume Q. Search C search Volumes (1/1) C estate volume Q. Search C estate volume Volumes (1/1) C estate volume Q. Search C estate volume Volumes (1/1) C estate volume Q. Search C estate volume Volumes (1/2) C estate volume Volumes (1/2) C estate volume Volumes (1/2) Volumes (1/2) Q. Search C estate volume Volumes (1/2) Volumes (1/2)
Select the volume from PEER node 3 again.	Control Control <t< th=""></t<>
Select the volume from PEER node 3 again.	Volumes (1/1) Ø Actions Create volume Volumes (1/1) Ø Actions + Create volume Volumes (1/1) Ø Actions + Create volume Volumes (1/1) Ø The Jan 17 2023 152509 G No Volumes (1/1) Ø Actions + Create volume Volumes (1/2) Clear filters Create volume Create volume Ø Name V Volume (2 - Volume (2 - Volume (2 - Ø - vol-000000000000000000000000000000000000
Select the volume from PEER node 3 again.	Volumes (1/1) C Antached Tue Jan 17 2023 152509 G No - Volumes (1/1) C Antached Tue Jan 17 2023 152509 G No - Volumes (1/1) C Antached Tue Jan 17 2023 152509 G No - Volumes (1/1) C Antached Tue Jan 17 2023 152509 G No - Volumes (1/1) C Antached Tue Jan 17 2023 152509 G No - Volumes (1/1) C Antached Tue Jan 17 2023 152509 G No - Volumes (1/1) C Antached Tue Jan 17 2023 152509 G No - Volumes (1/1) C Antached Tue Jan 17 2023 152509 G No - Volumes (1/1) C Antached Tue Jan 17 2023 152509 G No - Volumes (1/1) C Construction Construction Construction Construction Construction Volume (10 volume (10 volume) Volume (10 volume) Volume (10 volume) Volume Construction Construction C - vol-Qobat/591493/64/leg ga3 500 G8 30000 125 Contet volume
Select the volume from PEER node 3 again.	Volumes (1/1) Create values Volumes (1/1) Class 152.509 G. No Volume 10 = vol.505.5163.551435.618e X Class 152.509 G. Name = Volume 10 = vol.505.51435.618e X Class 12.509 G. Image: Part of the state of the sta
Select the volume from PEER node 3 again.	Volumes (1/1) Attached Tie Jan 17 2023 152509 G No Casta values Volumes (1/1) <l< th=""></l<>
Select the volume from PEER node 3 again.	Volumes (1/1) Create volume Volume V Volume ID V Volume V Volume ID Volume V Volume V Volume ID Volume V Volume ID Volume ID Volume ID<
Select the volume from PEER node 3 again.	Volumes (1/1) Clear filters Volumes (1/1) Volume (1/1) Volumes (1/1) Volume (1/1) Volumes (1/1) Volume (1/1) Volume (1/2) Volume (1/1) Volume (1/1) Volume (1/1) <
Select the volume from PEER node 3 again.	Volumes (1/1) Create volume Volumes (1/1) Volume (1/1) Create volume Volume Volumes (1/1) Create volume Create volume Volume Volumes (1/1) Volume (1/1) Create volume Volume Volumes (1/1) Volume Volume Volume Volume Volume Volume Volume Volume Volume Volume Volume Volume
Select the volume from PEER node 3 again.	Volumes (1/1) Create volume Woldsdd5514556dfae (eer)df 500 Attached Ter Jan 17 2023 152509 G. No - Volumes (1/1) Caster volume Attached Ter Jan 17 2023 152509 G. No - - Volumes (1/1) Caster volume Attached Ter Jan 17 2023 152509 G. No - - Volumes (1/1) Caster volume Attached Ter Jan 17 2023 152509 G. No - Wature to volobateS914936dfae X Class Titlers Class tappoot Caster volume Name v Volume 10 volobateS914936dfae X Class Titlers Class tappoot Value to volobateS914936dfae Q Type v Size v 10PS v Throughput v Caster volume Caster volume Caster volume Size V 10PS v Throughput v Caster volume Size V Volume 10 volobateS914936dfae go3 500 G8 3000 13 Eactor volume Size V Value Volume 10 volobateS914936dfae go3 500 G8 300 13 Eactor volume Manage tags Volume 10 volume Knange tags Volume 10 volume No No
Select the volume from PEER node 3 again.	Jacksbergeneties Jacksbergeneties Jacksbergeneties Jacksbergeneties Jacksbergeneties Volumes (1/1) Create values Volumes (1/1) Volumes Volumes Volumes
Select the volume from PEER node 3 again.	Jackson J. Jackson B. Jackson J. No - Volumes (1/1)
Select the volume from PEER node 3 again.	Jackson (1/1) Jackson (1/1) Jackson (1/1) No = Volumes (1/1) Ø Attached Te Jan 17 2023 15/200 (2 No = Volumes (1/1) Ø Attached Te Jan 17 2023 15/200 (2 No = Volumes (1/1) Ø Attached Te Jan 17 2023 15/200 (2 No = Volumes (1/1) Ø Attached Te Jan 17 2023 15/200 (2 No = Volumes (1/1) Ø Attached Te Jan 17 2023 15/200 (2 No = Volumes (1/1) Ø Attached Te Jan 17 2023 15/200 (2 No = Volumes (1/1) Ø Attached Te Jan 17 2023 15/200 (2 No = Volumes (1/1) Ø Attached Te Jan 17 2023 15/200 (2 No = Ø Attached Te Jan 17 2023 15/200 (2 No = > Ø Search O O O O O O O O O O O O O O O O O O O
Select the volume from PEER node 3 again.	Notice Junction Junction Junction Internal if Zalida Statution No = Volumes (1/1) Actions Create volume Hoddy volume Actions Create volume Actions Create volume I (2) Actions I (2) Actions Create volume I (2) Actions I (2) I (2)
Select the volume from PEER node 3 again.	Jackson 1 Jackson 1 Jackson 1 No - Volumes (1/1)
Select the volume from PEER node 3 again.	John Statute John Statute John Statute John Statute No - Volumes (1/1)
Select the volume from PEER node 3 again.	Montania su Montania su Noveleta substatione Noveleta substati
Select the volume from PEER node 3 again.	Jackson Billion Jackson Billion No - Volumes (1/1) Antonical The Jan 17 2023 15/2009 G. No - -
Select the volume from PEER node 3 again.	Jackson w Jackson w No - Volumes (1/1) Image of the standard The Jan 17 2023 152509 G. No Volumes (1/1) Image of the standard Image of the standard No Volumes (1/1) Image of the standard Image of the standard Image of the standard Volumes (1/1) Image of the standard Image of the standard Image of the standard Volumes (1/1) Image of the standard Image of the standard Image of the standard Volumes (1/1) Image of the standard Image of the standard Image of the standard Image of the standard Image of the standard Image of the standard Image of the standard Image of the standard Image of the standard Image of the standard Image of the standard Volumes ID: vol-050dad5914935dfate Image of the standard Image of the standard
Select the volume from PEER node 3 again.	Jackson Billion Jackson Billion No - Volumes (1/1)
Select the volume from PEER node 3 again.	Jackson Barling Jackson Barling No - Volumes (1/1)
Select the volume from PEER node 3 again. From Volume, click on 'Detach volume'and press OK	Jackson Barling Jackson Barling No - Volumes (1/1)
Select the volume from PEER node 3 again. From Volume, click on 'Detach volume'and press OK on the screen that pops up.	Jackson Barling Jackson Barling No - Volumes (1/1) Actions Create solution Actions Create solution Class 122.500 fb. No - Actions Create solution Class 122.500 fb. No - Create solution Class 122.500 fb. No - - Create solution Class 122.500 fb. No - Class 122.500 fb. No - -
Select the volume from PEER node 3 again. From Volume, click on 'Detach volume'and press OK on the screen that pops up.	Jackson Barling Jackson Barling No - Volumes (1/1)
Select the volume from PEER node 3 again. From Volume, click on 'Detach volume'and press OK on the screen that pops up.	Jackson Barling Jackson Barling No - Volumes (1/1)

Attach encrypted volume to PEER node

Attach the encrypted volume to the node

	Volumes (1/1)	C Actions A Create volume
	Q, Search	Hodify volume < 1 >
	Name Volume ID V Type V Size V IOPS V Through	Create snapshot lifecycle policy
	- vol-0966388669630046 gp2 500 GiB 1500 -	Attach volume 5:46 GMT+9 ap-m:
		Detach volume
		Manage auto-enabled VD
		Manage tags
Select the encrypted volume and click 'Attach volume'.		
		_
	EC2 > Volumes > vol-09663886ff96300d6 > Attach volume	
	Attach volume Info	
	Attach a volume to an instance to use it as you would a regular physical hard disk	drive.
	Basic details	
	() This volume is encrypted and it can only be attached to	
	an instance that supports EBS encryption. Learn more	
	Volume ID	
	Availability Zone an-northeast-1a	
		-
	Instance Info	
	i-08982d6d8b7a2b560 Chylinstances in the same availability 7ana or the celested values are de-true d	
	interview in one serve memory and as the percent volume are utsplayed.	-
	Vevice name Info	
	Recommended device names for Linux: /dev/sda1 for root volume. /dev/sd[f-p] for data vo	lumes.
	Newer Linux kernels may rename your devices to /dev/xvdf through	
	/dev/xvdp internally, even when the device name entered here (and sh the details) is /dev/sdf through /dev/sdp.	own in
	are accurdy is yacayour anough yacayoup	
		Cancel Attach volume
Select instance as REER node 2 and specify the device name you		
being a stad down as the same wath as the unliverse hafene		
nave noted down as the same path as the volume before		
encryption.		
Click on 'Attach volume.'		
	Instances (1/5) into C. Connect Int	stance state V Actions V Laurch instances
	Q. Find instance by attribute or tag (case-sensitive)	< 1 > @
	MUN-CATAPULT X Clear filters	Instance boxe or Chatter chapter Alexandre
	Instance tu Instance tu Instance tu Instance state ♥ MUR4-CATAPULT-peer3 i-08162.d6d8b7a205560 Stopped @,@,	14g.large – No alarms
	MUN-CATAPULT-peer2 I-Oct94a69x97a84a06 Ø Running @ Q MUN-CATAPULT-peer1 I-Oct94a69x97a84a06 Ø Running @ Q	t4g.large © 2/2 checks passed No alarms 64g.large © 2/2 checks passed No alarms
	MUN-CATAPULT-api2 i-069adcetc566654de @Running @cq.	t4g.large O 2/2 checks passed No alarms
	MUN-CATAPULT-api1 I-0555582000475548 @Running @.Q.	t4g.large Ø 2/2 checks passed No alarms
	Instance: i-08982d6d8b7a2b560 (MIJIN-CATAPULT-peer3)	Θ×
	Details Security Networking Storage Status checks Monitoring Tags	
	Root device name Root device type	EBS optimization
	U /dw/wda1 EBS v Block devices	disabled
	Q, Filter block devices	
	Volume ID Device name Volume size (GH8) Attachment status Attachment	time Encrypted KMS key ID
	vol-0725240er9405831c /dev/uda1 30 ② Attached Tue Jan 17 vol-09563886996300d5 /dev/sdf 500 ④ Attached Tue Jan 17	1025 15:29:09 G No - 1023 16:53:07 G Yes 140d4ts2:84b5-4014-in45- r5.
	Recent not values realizement taks)
	Process roots measured reput/centrem sales	Replace root volume
	Technik I Markana I davadar I davadar	tion time Tags
	Task state State Comp.	
	raak no i raak state state state no i compt	
	aux in in aux sume for the second register root volume tasks	
Verify that the encrypted volume is attached	van of avar some por time No recett register not valame taals	
Verify that the encrypted volume is attached.	i van ou i van duere i van duere i de	

Note: The device name must be the name of the device noted in Obtain a snapshot of a stopped node.

Start up a stopped PEER node

Start up the stopped node and start up mijin Catapult(v.2) as well.

	Instances (1/5) tota	C for	nart Instance state A	Actions - Launch instances
	End instance by attribute or tag (once-consistent)		Stop instance	
			Start instance	
	Clear fitters		Report Instance	
	Name Vinstan	ce ID Instanc	e state Hibernate instance	Status check Alarm status
	MUIN-CATAPULT-peer3 I-0898	Zd6d8b7a2b560 Stop	Terminate instance	- No alarms
	MUIN-CATAPULT-peer2 1-0cH94	la69c97a84a06 ⊘Run	ning @@ t4g.targe	2/2 checks passed No alarms
	MUIN-CATAPULT-peeri 1-0037	drefr 5665a4de	ning @@ t4g.large	2/2 cnecks passed No alarms
	MUIN-CATAPULT-api2 1-0656	dcercs66634de 🕑 Run	ning @@ t4g.large	2/2 checks passed two atarms
	Holivotikeotrapii Possa	Gezeelia73348 Gran	ning etet owgrange	C2/2 circus passed ind atamis
		=		
	Instance: i-08982d6d8b7a2b560 (MIJIN-CATAPULT-peer:	3)		© ×
	Details Security Networking Storage Status check	ks Monitoring Tags		
	Root device details Root device arms Root device Root	co tuno	EBS optim	intio
	D /dev/sda1 EBS	ce type	disabled	lization
	▼ Block devices			
	Q. Filter block devices			
	Volume ID Device name Volume size (Gi	iB) Attachment status	Attachment time	Encrypted KMS key ID
	vol-0723249ce9a36831c /dev/sda1 30	Attached	Tue Jan 17 2023 15:29:09 G	No -
	vol-09663886ff96300d6 /dev/sdf 500	Attached	Tue Jan 17 2023 16:53:07 G	Yes f40d4fa2-84b5-40f4-bd5c-f5
	4			•
From the list of instances, check PEER node 3 and click 'Start Instance'.				
Log in to PEER node 3.	. /aws_tips_ssm_login and	d log in to t	he node.	
	\$ df -h	0		
	/dev/root 30G 8.10 21G 28% / /dev/root 30G 8.10 21G 28% /			
	tmpfs 3.9G 0 3.9G 08 /dev/shm tmpfs 787M 800K 786M 18 /run			
	tmpfs 5.0M 0 5.0M 0% /run/lock tmpfs 3.9G 0 3.9G 0% /sys/fs/cgroup			
	/dev/loop0 26N 26M 0 100% /snap/amazon-ssm-agent /dev/loop1 29N 29M 0 100% /snap/amazon-ssm-agent	/5656 /2012		
	/dev/loop3 5eH 56H 0 1008 /snap/core18/2560 /dev/loop2 114H 114H 0 1008 /snap/core18/255 /dev/loop5 64H 0 1008 /snap/core32/1453			
	/dev/loop4 56N 01008/snap/core18/1885 /dev/loop7 71N 71M 01008/snap/core18/1895			
	/dev/loop6 68M 68M 01008 /snap/lxd/22753 /dev/nymeln1 500G 3.7G 497G 18 /mnt/milin/blocks			
	\$ \$ sudo su - catapult			
	<pre>catapult@peer3i-\$ catapult@peer3i-\$ catapul</pre>	apult/		
	catapult@peersi-/mljin-catapult-package/package/peer/catapult catapult@peersi-/mljin-catapult-package/package/peer/catapult	t\$ L\$ docker-compose up -d		
	Creating catapult_peer-node_1 done catapult_peerlsin	å docker-compose ps		
	Name Command State	e Ports		
	<pre>catapult_peer-node_1 bash -c /bin/bash /scripts Up catapult@peer3i-/mijin-catapult-package/package/peer/catapult</pre>	0.0.0.0:7900->7900/tcp t\$ docker-compose logs1	ail=10	
	Attaching to catapult_peer-mode_1 peer-mode_1 2022-09-09 07:06:14.490243 0x00007f83877fe700:			ctory.cpp899) writing importances to file
	peer-node_1 2022-09-09 07:06:14.520207 0x0000763877fe7001	<pre><debug> (utils)(StackLog</debug></pre>	ger.h037) pushing scope 'P	osImportanceCalculator::recalculate'
	e) at height 5320 peer-node 1 2022-09-09 07:06:14.520387 0x00007f83877fe700		ager.h843) popping scope 'P	osImportanceCalculator::recalculate' (0ms
	<pre>peer-node_1 2022-09-09 07:06:14.520410 0x00007f83877fe700: data/importance/wip/0000000000014C8.dat for height 5320</pre>			ctory.cpp899) writing importances to file
	<pre>peer-node_1 2022-09-09 07:06:14.748499 0x00007f83877fe700 alized height 5004 dynamic fee multiplier 0 total transaction</pre>	<pre>i <debug> (cache::Suppleme ns 34 (score = [0, 588521)</debug></pre>		ote last recalculation height 5320 last f 3)
	<pre>peer-node_1 2022-09-09 07:06:15.293560 0x00007f83877fe700: alized height 5004 dynamic fee multiplier 0 total transaction</pre>	<pre>i <debug> (cache::Suppleme ns 34 (score = [0, 588601)</debug></pre>	entalDataStorage.cpp#32) wr 190833274391], height = 534	ote last recalculation height 5320 last f 4)
	peer-mode] 2022-09-09 07.06415.304660 0500007f03867567000 <info> (dince> (disruptor: logasteher-opge* (heights 5037 - 5340) (d#72C14) from Semont-Built with sime 11688 73201, last consumeris la leidenste behi</info>			
	peer-node 1 2022-09-09 07:06:15.336099 0x00007f83867fc700: eights 5344 - 5364) [FA905C6B] empty from Benote Pub with s	<pre>i <info> (disruptor)(Const ize 376B), last consumer i</info></pre>	merDispatcher.cpp844) comp	leting processing of element 2 (1 blocks
	catapult@peer3i-/mijin-catapult-package/package/peer/catapult catapult@peer3i-/mijin-catapult-package/package/peer/catapult	t\$ 48 docker-compose logs1	ail=10	
	Attaching to catapult_peer-mode_1 peer-mode_1 2022-09-09 07:06:50.462063 0x00007f83867fc700:	<pre>info> (disruptor)</pre>	merDispatcher.cpp844) comp	leting processing of element 4 (1 blocks
	eights 5346 - 5346) [7804AD27] empty from Remote Push with s; peer-mode_1 2022-09-09 07106150.568038 0x00007f83a5152700	ize 376B), last consumer : <debug> (disruptor))Dist</debug>	is 0 elements behind ruptor.cpp043) disruptor qu	euing element 5 (1 blocks (heights 5346 -
	346) [0000000] From Remote Pain with Size 3768] peer-mode_1 2022-09-09 0710510.613352 0x00007f83867fc7001 aidbts 5346 - 53461 (720400771 from Parota Parota Pain) with size 378	<pre>i <info> (disruptor):Consu fRi last consumer is 0 el</info></pre>	merDispatcher.cpp844) comp	leting processing of element 5 (1 blocks
	peer-node_1 2022-09-09 07:06:52.387527 0x00007f83a5152700: 0000000000000005)	<pre>i <debug> (ionet)(PacketSc</debug></pre>	ocket.cpp8721) invoking use	r callback after successful async_accept
	peer-node_1 2022-09-09 07:06:52.387662 0x00007f83a5152700: 06: Accepted	<pre>info> (extensions):Netv</pre>	workUtils.cpp#125) accept r	esult to local node port 7900 from 10.0.3
	peer-node_1 2022-09-09 07:06:52.387762 0x00007f83a5152700: 7BC97103A6ABE0F791A1655E20633CC387ACE198A0B7E9AA0			ection from '10.0.3.206' as 82DA8AE358AC7
	peer-node_1 2022-09-09 07:06:56.123110 0x00007#83a5152700; 00000000007)	<pre>i <info> (ionet):PacketSoc</info></pre>	cket.cpp#850) connected to	peerl.mijin.internal [10.0.2.78;7900] (00
), 7ms elapsed peer-node 1 2022-09-09 07105155.127156 0x00007f83a5953700	<pre>info> (ionet):PacketSor</pre>	ket.cpp#850) connected to	peer2.mijin.internal [10.0.3.206(7900] (0
	00000000000000000000000000000000000000		ocket.cpp#513) socket close	triggered by destruction (00000000000000
	j, llms_elapsed catapult8peer3i=/mijin-catapult-package/package/peer/catapult			
Make sure the disk is mounted, and start up mijin				
Catapult(v 2)				
Catapatt(v.z).				
lldf -h				
sudo su - catapult				
ll ad midin actomult merhans (merhans (
cu mijin-calapuil-package/package/				
<u>⇔peer/catapult/</u>				
-Ferry oucuparts,				
docker-compose up -d				
dealtan ampaga na				
laocker-compose ps				

2.2.6.3 mijin Catapult(v.2) periodic backup of nodes

This chapter describes the procedure for backing up data on a node of mijin Catapult(v.2) on AWS. By backing up your nodes, you can recover from the blockchain data in the event of a region failure, for example.

About AWS Backup Service

Easily back up the mijin Catapult(v.2) running on your EC2 instance Use 'AWS Backup'to perform backups on a regular basis. To learn more about AWS Backup, please refer to the following https://docs.aws.amazon.com/ja_jp/aws-backup/latest/devguide/whatisbackup.html

Creating a Backup Plan





Note:

Although you can specify multiple nodes (EC2 instances) to be backed up mijin Catapult(v.2) can recover everything from blockchain data on a single node, so regular backups

are no problem if only one node is backed up, thus reducing costs.

*1 If the destination region is the same region, it can be recovered at Restore from a backed-up snapshot.

Separate regions can also be used for disaster recovery and other anti-disaster measures.

2.2.6.4 mijin Catapult(v.2) Balance transfer of balance account when commissioned mode is enabled

This chapter explains how to move balances from one account with a balance of a mijin Catapult(v.2) node on AWS to another.

The moved account is recommended as the account for the mijin Catapult(v.2) operation.

Note:

In a blockchain, there is always a base currency and transaction fees must be paid in operating the blockchain.

mijin Catapult(v.2) also requires a fee to create a transaction if you enable the with fee mode, and you must operate with an account that has a base currency balance for all transaction fees, Mosaic rental fees, etc.

Conversely, the no-fee mode allows you to create transactions using accounts that do not carry a balance.

Verify accounts with balance

Outstanding accounts are stored in **nemesis_addresses_harvesting.json** in the AWS Systems Manager parameter store.

The list of accounts in this file is all tied to each node.

```
AWS Systems Manager > Parameter Store > /MIJIN-CATAPULT/shares/nemesis_addresses_harvesting.json > Overview
/MIJIN-CATAPULT/shares/nemesis_addresses_harvesting.json
  Overview
               History
                          Tags
  Name
  /MIJIN-CATAPULT/shares/nemesis_addresses_harvesting.json
  Tier
  Standard
  Туре
  String
  Last modified date
  Tue, 17 Jan 2023 06:26:05 GMT
  Value
   "api": [
    {
     "address": "MDBFPEAECQTM5CTDXWGAMEQQ5GRQ5ORMXFNTA4A",
     "public_key": "7D7C86B3229CC1B6551A1526DB4ADF646CD0A3DAB1C7090DBE70798FA63E9BD5",
     "private_key": "562B913CADD35D2FA18CA26B9F357966AFF6908DEFCBC6DA33535C1791D949E4"
    {
     "address": "MB6XYV4MNZ2BI7SYEVHQF2HWYUF3CBBB4SWAQ3I",
     "public_key": "06358B47BF9A0DCB481A451E048A4880831CAF3160336A2F7555378C6107B75D",
     "private_key": "7F54E66E6F83FF6CF75BA1F5444DF9904334FB58CEEF60D03A68334543F29A2C"
    {
     "address": "MBWDZML7UN4TW3W3OM3HYR6MYMLBUK2IZMCGMLQ",
     "public_key": "A2C27604062DE3F2ECD554E6FF19292A85D52CB5E16193CB7FF86950A305E41F",
     "private_key": "2EBA3EC82A2C2DEF7C01DD28908CBD2E346908E41C6351C9D2B149C3866270DC"
    }
   "peer": [
    {
     "address": "MCLF2ATQK244CXTW452GENXSUNFND3A77N5K4GA",
     "public_key": "600F61AB6CBAE4E205DF13933479E8F597CE2F6E44EDA05228335CF074BEC397",
     "private_key": "CFB9E3CE97CE0A09EA0800CBB7863C6C3C34ED6BCED8FBEEDCAAAD82F783E31D"
    }.
    {
     "address": "MBUOACOIVGCYE4HTGD22KCYRQDTHDIKJ4UQEZAQ",
     "public_key": "42203C105C56097EBFA73AFCA210FE64E798877C150D1A163E91AC76C84E4D05",
     "private_key": "66F286751674BEBB002321AD3098D851A68A78F7434A8323CDE3F8EF349093D7"
    },
    {
     address": "MAKYTI6UEHQPXT6URA7O343QAWGPGVQW2ZI4GJI",
     "public_key": "233DBC5D4F40AAEF258F6E95A4F345A5884C2066B9DB815AA1D84D2F363E4AD2",
     "private_key": "A46027A097CB264229E248F0B9DC9473F0F3CE202A84B49934CD9B9F8C27E9EE"
    {
     "address": "MBY5AE5Z33TZK3LJKIYVAR6TOSAMBY43SSPZNEQ",
     "public_key": "F7A7BF7C36CCC292C20C8B5EF7A9D166BD64CEBC69E7CD1D1C3E0D2A890B8C39",
     "private_key": "AB30316D06C5DC8880E347B30C0ECAD55F2865876E25D97EEBC10E801D952406"
    {
     address": "MDRHUCI4BUGBE2UPQHW5YAU2RW4QXGF74YB2AKY",
     "public_key": "35647B4814CDC693FB9CAB8E19680977EEB1901BD91320153D957CDA31D7A9CF",
     "private_key": "99BFCBD6492131C257FBD7528B23A92FC53324B0FBB74A5DFB2C37E13B73F044"
    {
     address": "MB5VDICRGZUNLRDMBBIYDWVOZEJRTS2DZILZWPQ",
     "public_key": "8E5E81270C7DC9ECEB4EEA96C38559C51D73E3B52348937306E6119E82233B95",
     "private_key": "B1CBE7C231509D4346DE44A67AC234B73AA7335CE077F53FBA566ABD6B413D0E"
    3.
    {
     address": "MAPVOVSBZ7BVV4K6JJ337BEEIMSTRJBCD64GYNY",
     "public_key": "B2D198630DF58AAAB3AFF8DEFD3BEA1D844C7C00FA2D26777E3A219D6240CF27",
     "private_key": "4EB84C95958A5EA7319E8D603CF648F5A80249F38FE3CBBA6BEA8592B60E3773"
   1
  }
```
All accounts have balances, but here we will check the following data at the top using mijin-catapult-cli.

```
"address": "MDBFPEAECQTM5CTDXWGAMEQQ5GRQ5ORMXFNTA4A",
    "public_key": "7D7C86B3229CC1B6551A1526DB4ADF646CD0A3DAB1C7090DBE70798FA63E9BD5",
    "private_key": "562B913CADD35D2FA18CA26B9F357966AFF6908DEFCBC6DA33535C1791D949E4"
},
```

Preparation Install nodejs and yarn

Install nodejs to use mijin-catapult-tools. Install nodejs using NodeSource

```
$ curl -fsSL https://deb.nodesource.com/setup_14.x | sudo -E bash - && sudo apt-get
install -y nodejs
$ node --version
$ sudo npm install -g yarn
```

Installing mijin-catapult-tools

Use yarn to install mijin-catapult-tools.

```
$ yarn global add @tech-bureau/mijin-catapult-tools
$ echo 'export PATH="$HOME/.yarn/bin:$PATH"' >> ~/.bashrc && source ~/.bashrc
```

Import of balance accounts

Import balance accounts. -u specifies the mijinLBENdpoint or mijinEndpoint URL in the CloudFormation output. -p specifies the private_key of the balance account.

```
$ mijin-catapult-tools account generate -w aws.json -u http://xxxxxxxxxxxxxxxxxxxxxxxxxxxxx
→elb.ap-northeast-1.amazonaws.com:3000 -s -p
562B913CADD35D2FA18CA26B9F357966AFF6908DEFCBC6DA33535C1791D949E4
2023-01-17T07:35:12.266Z [info] : mijin URL: http://xxxxxxxxxxxxxxxxx.elb.ap-
⇔northeast-1.amazonaws.com:3000
2023-01-17T07:35:12.268Z [info] : Network: 96
2023-01-17T07:35:12.268Z [info] : Mosaic Currency Id: 769E11974E2CAD76
2023-01-17T07:35:12.269Z [info] : Mosaic Harvest Id: 792022E7945425E4
2023-01-17T07:35:12.269Z [info] : Start Account Generate...
2023-01-17T07:35:12.343Z [info] : Write Config File: aws.json
2023-01-17T07:35:12.345Z [info] : New Account: {
  "url": "http://xxxxxxxxxxxxxxxxx.elb.ap-northeast-1.amazonaws.com:3000",
  "workAccount": {
    "publicKey": "E28BF2A27FE64DF392CBF6D6883BE4858CF26790B4EABC3BCA8E08854BC6A9BF",
    "privateKey": "C3BE65EB9055405ED8CCB7AD568D1368067174F969E9321C0AB4379A7565C9C2",
    "address": "MB2ZQXQQQHOVYU4GX2TKNNJK6XLZPIZV6LK62MY"
  },
```

```
"balanceAccount": {
  "publicKey": "7D7C86B3229CC1B6551A1526DB4ADF646CD0A3DAB1C7090DBE70798FA63E9BD5",
  "privateKey": "562B913CADD35D2FA18CA26B9F357966AFF6908DEFCBC6DA33535C1791D949E4",
  "address": "MDBFPEAECQTM5CTDXWGAMEQQ5GRQ5ORMXFNTA4A"
},
"mainAccount": {
 "publicKey": "DAF95081E2D816062108424CF2404B9C3B7C4C7CD1DF6E1446158CC2A2D9B29B",
 "privateKey": "ACF704D53457DF418E1784BACB6D0977B2626BC2847506C7D91B39CDD0515F0F",
 "address": "MD4J2ZVP2AW3BCH6UKZOJNNBGS35DBKTNS4KGVI"
},
"keylink": {
 "vrf": {
   "publicKey": "E3D05474D23B57EEFCF953EB7A1AF7A44F9BA338C83900AB0A72927D933CD56A",
   "privateKey": "D0F48B1926ECA6C32C1D3A61AE25A7A483EF47B6DE96B9B4E4970773F904CB73",
   "address": "MBR5NJKKF66GVIOFQKCJOAOTR5KWFE5AKWTVLOQ"
 },
  "voting": {
   "publicKey": "8A615FD6E66CBCB6361FAE0156CB6E22E0932F7157F04849551FCAE9CC6E494F",
   "privateKey": "1615F3484A2123131A624FA065E4B17A0CE916FF6D5A772501FBC83876B3B912",
   "address": "MDWPSE2HLW4HFFTLSECCIMWQPF6IKFPQAI76V3Y"
  }
},
"test1Account": {
 "publicKey": "889E1705185A2138F4408D70C28A015536F05A69185392F8C683BB39A0BDB951",
 "privateKey": "8636D903270275A3A6459B41E73E8E7365A6A55ED2437AB25F3321230FD64C35",
 "address": "MBRU2UKYC5C7J6MNQU7F3KYXFVMSIUKUZTPWFHI"
},
"test2Account": {
 "publicKey": "24323D2D3594BF0A1993E018571EBD1175BD4B461EF3D15FE4EB09FADAB95834",
  "privateKey": "2A4F1B1E98BF4F91F6FE6D6F90844D9FCA78BCF198028AD8778CC85C409F6B5E",
  "address": "MAWOT4JSX30YBMNGRM47ZQDDUHCJ3LLQKK06RKA"
```

Verify account information.

Mosaic Id **769E11974E2CAD76** with "currency": true is the base currency. Currency with "harvest": true must be owned by the node entitled to generate the block.

Warning: Note that the Mosaic Id for the base currency is created at the time of deployment and is not the same Id.

```
$ mijin-catapult-tools account info -r aws.json -t balance
2023-01-17T07:36:16.432Z [info] : mijin URL: http://xxxxxxxxxxxxxxxx.elb.ap-
-northeast-1.amazonaws.com:3000
2023-01-17T07:36:16.433Z [info] : Network: 96
2023-01-17T07:36:16.433Z [info] : Mosaic Currency Id: 769E11974E2CAD76
2023-01-17T07:36:16.434Z [info] : Mosaic Harvest Id: 792022E7945425E4
2023-01-17T07:36:16.434Z [info] : Start Account Info
2023-01-17T07:36:16.603Z [info] : balance Account: {
    "publicKey": "7D7C86B3229CC1B6551A1526DB4ADF646CD0A3DAB1C7090DBE70798FA63E9BD5",
    "address": "MDBFPEAECQTM5CTDXWGAMEQQ5GRQ50RMXFNTA4A",
```

```
"mosaics": [
  {
    "id": "769E11974E2CAD76",
    "amount": "1799799999600000",
    "currency": true,
    "harvest": false
  },
  {
    "id": "792022E7945425E4",
    "amount": "3000000",
    "currency": false,
    "harvest": true
  }
1,
"keylink": {
  "vrf": {
    "publicKey": "9CD207F9A6DE6D485D350C29B749590251924A29C0EFD8E38DDE24866D71F160"
  },
  "voting": {
    "publicKey": "E3822AA0720F610847E4BE2B740F8FFF9130BEC4E9140BA845150DC2D591D86D",
    "startEpoch": 1,
    "endEpoch": 26280
  }
}
```

Create a new account

Create a new account with no balance. Move the balance to address **MDJMNVU47CWHTZBMX7B6M6WWT5NEEY4GTG66GLQ** later.

```
$ mijin-catapult-tools account generate -r aws.json
2023-01-17T07:38:41.738Z [info] : mijin URL: http://xxxxxxxxxxxxxxx.elb.ap-
onortheast-1.amazonaws.com:3000
2023-01-17T07:38:41.740Z [info] : Network: 96
2023-01-17T07:38:41.740Z [info] : Mosaic Currency Id: 769E11974E2CAD76
2023-01-17T07:38:41.740Z [info] : Mosaic Harvest Id: 792022E7945425E4
2023-01-17T07:38:41.740Z [info] : Start Account Generate...
2023-01-17T07:38:41.768Z [info] : New Account: {
    "publicKey": "7437EB45A39AF335F08CABD203503632115CA1793902F5106BC03963C96AEE4F",
    "privateKey": "708AB4973F37B89195340AEA7EBD733ED16AE51B99EB648E7A3885869CBAF3C9",
    "address": "MDJMNVU47CWHTZBMX7B6M6WWT5NEEY4GTG66GLQ"
```

Query the node for account information.

Verify that this account has a non-existent error because there is no record of a balance in the node.

```
$ mijin-catapult-tools account info -r aws.json -t other -a
MDJMNVU47CWHTZBMX7B6M6WWT5NEEY4GTG66GLQ
2023-01-17T07:39:44.832Z [info] : mijin URL: http://xxxxxxxxxxxxxxxx.elb.ap-
```

```
→northeast-1.amazonaws.com:3000
2023-01-17T07:39:44.834Z [info] : Network: 96
2023-01-17T07:39:44.834Z [info] : Mosaic Currency Id: 769E11974E2CAD76
2023-01-17T07:39:44.834Z [info] : Mosaic Harvest Id: 792022E7945425E4
2023-01-17T07:39:44.834Z [info] : Start Account Info
2023-01-17T07:39:45.061Z [error] : Address Not Found
```

Balance transfers

Transfer the balance from the balance account to a new account (MDJMNVU47CWHTZBMX7B6M6WWT5NEEY4GTG66GLQ). Here we will transfer 100,000 cat.currency.

Announce a transfer transaction from your balance account (mijin-have-currency-account).

```
$ mijin-catapult-tools transaction transfer -r aws.json -f balance -d
MDJMNVU47CWHTZBMX7B6M6WWT5NEEY4GTG66GLQ -a 100000
2023-01-17T07:41:40.559Z [info] : mijin URL: http://xxxxxxxxxxxxxxxxx.elb.ap-
→northeast-1.amazonaws.com:3000
2023-01-17T07:41:40.562Z [info] : Network: 96
2023-01-17T07:41:40.562Z [info] : Start Transfer Account...
2023-01-17T07:41:40.585Z [info] : From Account Address:
MDBFPEAECQTM5CTDXWGAMEQQ5GRQ5ORMXFNTA4A
2023-01-17T07:41:40.585Z [info] : Dest Account Address:
MDJMNVU47CWHTZBMX7B6M6WWT5NEEY4GTG66GLQ
2023-01-17T07:41:40.585Z [info] : Currecny Amount: 10000000000
2023-01-17T07:41:40.594Z [info] : Start Transfer Transaction...
2023-01-17T07:41:55.775Z [info] : End Transfer Transaction
2023-01-17T07:41:55.775Z [info] : http://xxxxxxxxxxxxxxxx.elb.ap-northeast-1.
→amazonaws.com:3000/transactionStatus/
→EC5FE12DBEFD1DF7DDE2D49287EC4DA1649546BB1EC43DE75641D5D4A7BEE770
2023-01-17T07:41:55.775Z [info] : http://xxxxxxxxxxxxxxxxx.elb.ap-northeast-1.
→amazonaws.com:3000/transactions/confirmed/
→ EC5FE12DBEFD1DF7DDE2D49287EC4DA1649546BB1EC43DE75641D5D4A7BEE770
```

Verify that the new account has a balance.

The account information that was in error earlier is recognized by mijin Catapult(v.2) and you can confirm that you have a balance.

```
$ mijin-catapult-tools account info -r aws.json -t other -a
MDJMNVU47CWHTZBMX7B6M6WWT5NEEY4GTG66GLQ
2023-01-17T07:42:26.802Z [info] : mijin URL: http://xxxxxxxxxxxxx.elb.ap-
onortheast-1.amazonaws.com:3000
2023-01-17T07:42:26.803Z [info] : Network: 96
2023-01-17T07:42:26.804Z [info] : Mosaic Currency Id: 769E11974E2CAD76
2023-01-17T07:42:26.804Z [info] : Mosaic Harvest Id: 792022E7945425E4
2023-01-17T07:42:26.804Z [info] : Start Account Info
2023-01-17T07:42:26.927Z [info] : get Account: {
```

```
"address": "MDJMNVU47CWHTZBMX7B6M6WWT5NEEY4GTG66GLQ",
"mosaics": [
 {
   "id": "769E11974E2CAD76",
   "amount": "10000000000",
   "currency": true,
   "harvest": false
 }
],
"keylink": {
 "vrf": {
  "publicKey": ""
 },
 "voting": {
   "publicKey": "",
   "startEpoch": "",
   "endEpoch": ""
 }
}
```

2.2.6.5 mijin Catapult(v.2) How to update a node's voting rights file

This chapter describes how to deal with the expiration of node voting rights on a mijin Catapult(v.2) node on AWS.

Voting rights for a node expire approximately 547~3285 days, depending on the block generation interval.

Warning:

When the voting rights file expires, the finalization block stops. Therefore, if you are using finalize blocks, you must update them.

How to calculate the expiration date of a voting node

The expiration date of a single voting file can be determined by the following formula

Warning: Note that blockGenerationTargetTime (block generation interval) is an approximate value, for example, setting 15s does not mean that a block will be generated in a certain amount of time.

(VotingSetGroup * maxVotingKeyLifetime) / (60 / blockGenerationTargetTime * 60 * 24)

VotingSetGroup and maxVotingKeyLifetime are fixed values, so the value of blockGenerationTargetTime

The expiration date will vary depending on the value of blockGenerationTargetTime.

```
# blockGenerationTargetTime 10s
(180 * 26280) / (60 /10 * 60 * 24) = 547 days
# blockGenerationTargetTime 15s
(180 * 26280) / (60 /15 * 60 * 24) = 821 days
# blockGenerationTargetTime 60s
(180 * 26280) / (60 /60 * 60 * 24) = 3285 days
```

Log in to AWS Management Console

Log in at the AWS Managed Console.

https://aws.amazon.com/jp/console/

Move to EC2 Service

1. 上部「サービス」をクリックします
 2. 表示されたメニューから「コンピューティング」をクリックします
 3.「EC2」をクリックします。



Select the instance you wish to log in to and connect

1. 左側メニューから「インスタンス」をクリックします
 2. インスタンス一覧からログインしたいノードのチェックをクリックします。
 3.「接続」を押します。

aws Services Q Searc	ch	[Alt+S]	בו לא 🎝 🗹 צער אין
Resource Groups & Tag Editor			
New EC2 Experience	Instances (1/5) Info	C Connect	Instance state 🔻 🛛 Actions 🔻 🛛 La
EC2 Dashboard EC2 Global View	Q. Find instance by attribute or tag (case-sensitive) Instance state = running X MIJIN-CATAPULT X Name	Clear filters	Instance state ▼ Instance type ▼ S
Events	MIJIN-CATAPULT-peer3	i-08982d6d8b7a2b560	⊘Running ⊕Q t4g.large 🤇
lags	MIJIN-CATAPULT-peer2	i-0cf94a69c97a84a06	⊘Running @Q t4g.large 🤅
LIIIILS	MIJIN-CATAPULT-peer1	i-00378b62c6f296b03	⊘Running ⊕Q t4g.large 🤅
▼ Instances	MIJIN-CATAPULT-api2	i-069adcefc5666a4de	
Instances	MIJIN-CATAPULT-api1	i-0555de2cecf475348	
Launch Templates			
Spot Requests			
Savings Plans			
Reserved Instances			
Dedicated Hosts			
Capacity Reservations			
Images			
AMIs			
AMI Catalog			

Select Session Manager and connect

- 1. 「セッションマネージャー」であることを確認します。(選択されていなければクリック)
- 2.「接続」を押します。
- 3. コンソール画面のウィンドウが別で開きます。



Console screen operation

1. Confirm that '\$'appears in the console screen window.



Installing mijin-catapult-tools

1. If nodejs is not installed, install it.

```
$ curl -fsSL https://deb.nodesource.com/setup_14.x | sudo -E bash - && sudo
apt-get install -y nodejs
```

2. Switch to the catapult user and install mijin-catapult-tools.

Check status of current voting rights file

Refers to the public key.

Here it is **402B6ECE0D1CF99A7F07B832477048C56F213A4F54ED4AEB35AE829507FBC4A6**. We can confirm that this voting file is valid from 1 to 26280.

Note:

```
Note that the finalizationEpoch must be updated before it reaches 26280.

$ curl -Ss http://localhost:3000/chain/info | jq -r

{

"scoreHigh": "0",

"scoreLow": "16875391960469924",

"height": "310",

"latestFinalizedBlock": {

    "finalizationEpoch": 3,

    "finalizationPoint": 7,

    "height": "296",

    "hash": "AC19CA6C89F87F70470BD84649A31E4FA0E0C5DD71A55E9ADAE25C1AED47882F"

    }

}
```

Voting Rights File Update

The private key is retrieved from the public key obtained above, and a voting rights file is created. A sequentially numbered file private_key_tree2.dat is created.

```
$ mijin-catapult-tools votingkey update \
    -u http://localhost:3000 \
    -d mijin-catapult-package/package/api/catapult/userconfig/resources/
    votingkey \
    -p $(cat /mnt/mijin/shares/nemesis_addresses_harvesting_voting.json | jq -
    ir '.[]|.[]|select(.public_key ==
    "402B6ECE0D1CF99A7F07B832477048C56F213A4F54ED4AEB35AE829507FBC4A6")|.private_
    ikey')
2023-01-26T06:06:16.472Z [info] : Start Voting Key Update...
2023-01-26T06:06:16.476Z [info] : votingSetGroup: 160
2023-01-26T06:06:16.476Z [info] : votingMaxEpoch: 26280
2023-01-26T06:06:16.477Z [info] : votingStartEpoch: 26281
```

```
2023-01-26T06:06:16.477Z [info] : votingEndEpoch: 52560
2023-01-26T06:06:16.477Z [info] : blockGenerationTargetTime: 15
2023-01-26T06:06:42.716Z [info] : Voting Key file Create: SUCCESS mijin-
→catapult-package/package/api/catapult/userconfig/resources/votingkey/
→private_key_tree2.dat
```

Check status of voting rights file again.

If you see a voting rights file (private_key_tree2.dat) created with the same public key, the update file has been created.

Next time you need to update the finalizationEpoch before it reaches 52560.

2.2.6.6 [Archive] mijin Catapult(v.2) Balance transfer of balance account when commissioned mode is enabled

This chapter explains how to move balances from one account with a balance of a mijin Catapult(v.2) node on AWS to another.

The moved account is recommended as the account for the mijin Catapult(v.2) operation.

Warning:

Symbol-cli has been archived, so symbol-cli may not be available. From 1.0.3.4 and onwards, please refer to mijin Catapult(v.2) Balance transfer of balance account when commissioned mode is enabled.

Note:

In a blockchain, there is always a base currency and transaction fees must be paid in operating the blockchain.

mijin Catapult(v.2) But if you enable the with-fee mode, you will need to pay a fee to create a transaction, and you will need to operate with an account that has a base currency balance for all transaction fees, Mosaic rental fees, etc.

Conversely, the no-fee mode allows you to create transactions using accounts that do not carry a balance.

Verify accounts with balance

Outstanding accounts are stored in **nemesis_addresses_harvesting.json** in the AWS Systems Manager parameter store.

The list of accounts in this file is all tied to each node.

```
AWS Systems Manager > Parameter Store > /MIJIN-CATAPULT/shares/nemesis_addresses_harvesting.json > Overview
/MIJIN-CATAPULT/shares/nemesis addresses harvesting.json
  Overview
               History
                          Tags
  Name
  /MIJIN-CATAPULT/shares/nemesis_addresses_harvesting.json
  Tier
  Standard
  Туре
  String
  Last modified date
  Tue, 17 Jan 2023 06:26:05 GMT
  Value
   "api": [
    {
     "address": "MDBFPEAECQTM5CTDXWGAMEQQ5GRQ5ORMXFNTA4A",
     "public_key": "7D7C86B3229CC1B6551A1526DB4ADF646CD0A3DAB1C7090DBE70798FA63E9BD5",
     "private_key": "562B913CADD35D2FA18CA26B9F357966AFF6908DEFCBC6DA33535C1791D949E4"
    {
     "address": "MB6XYV4MNZ2BI7SYEVHQF2HWYUF3CBBB4SWAQ3I",
     "public_key": "06358B47BF9A0DCB481A451E048A4880831CAF3160336A2F7555378C6107B75D",
     "private_key": "7F54E66E6F83FF6CF75BA1F5444DF9904334FB58CEEF60D03A68334543F29A2C"
    {
     "address": "MBWDZML7UN4TW3W3OM3HYR6MYMLBUK2IZMCGMLQ",
     "public_key": "A2C27604062DE3F2ECD554E6FF19292A85D52CB5E16193CB7FF86950A305E41F",
     "private_key": "2EBA3EC82A2C2DEF7C01DD28908CBD2E346908E41C6351C9D2B149C3866270DC"
    }
   "peer": [
    {
     "address": "MCLF2ATQK244CXTW452GENXSUNFND3A77N5K4GA",
     "public_key": "600F61AB6CBAE4E205DF13933479E8F597CE2F6E44EDA05228335CF074BEC397",
     "private_key": "CFB9E3CE97CE0A09EA0800CBB7863C6C3C34ED6BCED8FBEEDCAAAD82F783E31D"
    }.
    {
     "address": "MBUOACOIVGCYE4HTGD22KCYRQDTHDIKJ4UQEZAQ",
     "public_key": "42203C105C56097EBFA73AFCA210FE64E798877C150D1A163E91AC76C84E4D05",
     "private_key": "66F286751674BEBB002321AD3098D851A68A78F7434A8323CDE3F8EF349093D7"
    },
    {
     address": "MAKYTI6UEHQPXT6URA7O343QAWGPGVQW2ZI4GJI",
     "public_key": "233DBC5D4F40AAEF258F6E95A4F345A5884C2066B9DB815AA1D84D2F363E4AD2",
     "private_key": "A46027A097CB264229E248F0B9DC9473F0F3CE202A84B49934CD9B9F8C27E9EE"
    {
     "address": "MBY5AE5Z33TZK3LJKIYVAR6TOSAMBY43SSPZNEQ",
     "public_key": "F7A7BF7C36CCC292C20C8B5EF7A9D166BD64CEBC69E7CD1D1C3E0D2A890B8C39",
     "private_key": "AB30316D06C5DC8880E347B30C0ECAD55F2865876E25D97EEBC10E801D952406"
    {
     address": "MDRHUCI4BUGBE2UPQHW5YAU2RW4QXGF74YB2AKY",
     "public_key": "35647B4814CDC693FB9CAB8E19680977EEB1901BD91320153D957CDA31D7A9CF",
     "private_key": "99BFCBD6492131C257FBD7528B23A92FC53324B0FBB74A5DFB2C37E13B73F044"
    {
     address": "MB5VDICRGZUNLRDMBBIYDWVOZEJRTS2DZILZWPQ",
     "public_key": "8E5E81270C7DC9ECEB4EEA96C38559C51D73E3B52348937306E6119E82233B95",
     "private_key": "B1CBE7C231509D4346DE44A67AC234B73AA7335CE077F53FBA566ABD6B413D0E"
    3.
    {
     address": "MAPVOVSBZ7BVV4K6JJ337BEEIMSTRJBCD64GYNY",
     "public_key": "B2D198630DF58AAAB3AFF8DEFD3BEA1D844C7C00FA2D26777E3A219D6240CF27",
     "private_key": "4EB84C95958A5EA7319E8D603CF648F5A80249F38FE3CBBA6BEA8592B60E3773"
   1
  }
```

All accounts have balances, but here we will check the following data at the top using symbol-cli.

```
"address": "MAL4SPKWUI3WGSNOWSDA3KKIBJG7QHMCXD7GZVA",
    "public_key": "FDA90ACB0B4DA564FBA3D9D3A3E67A7146A77D2F5C246BC67AC044AAD578E161",
    "private_key": "F36139408F597D2F0DA0C5E3CB1162E3D80EFEF188E21089284F57723676CC5C"
},
```

Installation of symbol-cli

{

Install symbol-cli from npm.

```
$ sudo npm i -g symbol-cli@1.0.0
/usr/local/bin/symbol-cli -> /usr/local/lib/node_modules/symbol-cli/bin/symbol-cli
+ symbol-cli@1.0.0
updated 1 package in 8.724s
```

Import of balance accounts

Import balance accounts.

item	Description	value
Select the network type		MIJIN/MIJIN_TEST
	Specify the network. CatapultNetwork value specified at build time	
Enter the Symbol node URL.	Specify the mijinLBENdpoint or miji- nEndpoint URL on the Outouts tab in the Cloudformation Stack.	<http: xxxxxx:300=""></http:>
Enter a profile name	Specify a profile name to invoke the ac- count.	optional
Enter your wallet password	Specify the password for your account	optional
Do you want to set the account as the default profile?	Specify whether this account is to be used by Default.	optional
Select an import type	Specify the import method for saving again.	PrivateKey
Enter your account private key	private_key in neme- sis_addresses_harvesting.json.	Optional where the value starts with F3613.

Account	
Property	Value
Address	MAL4SP-KWUI3W-GSNOWS-DA3KKI-BJG7QH-MCXD7G-ZVA
Public Key	 FDA90ACB0B4DA564FBA3D9D3A3E67A7146A77D2F5C246BC67AC044AAD578E161
Private Key	F36139408F597D2F0DA0C5E3CB1162E3D80EFEF188E21089284F57723676CC5C
Password	Test1234
SUCCESS Stored m	ijin-have-currency-account profile

Verify account information.

The base currency is **1D8350FA8D4830FA** with a high value of Amount in the Mosaic Id in the Balance Information.

Warning:	Note that the Mosaic Id for the base currency is created at the time of deployment and is
not the sa	me Id.

<pre>\$ symbol-cli account Processing Account Information</pre>	: infoprofile mi	ijin-have-currency-a	account	
Property	Value			
Address	MAL4SP-KWUI3W-GS	SNOWS-DA3KKI-BJG7QH-	-MCXD7G-ZVA	
Address Height	1			
Public Key	FDA90ACB0B4DA564FBA3D9D3A3E67A7146A77D2F5C246BC67AC044AAD578E161			
Public Key Height	1			
Importance	2850000			
Importance Height	2600			
Balance Information				
Mosaic Id	Relative Amount	Absolute Amount	Expiration Height	
1D8350FA8D4830FA	1,799,799,999.6	1799799999600000	Never	
01964E14621F06F6	3,000	3000000	Never	

Create a new account

Create a new account with no balance. Move the balance to address MADIFG-N27CKA-6DY42J-UMEFJA-7OKXLO-NXLAEQ-XII later.

item	Description	value
Select the network type	Specify the network. CatapultNetwork value specified at build time	MIJIN/MIJIN_TEST
Do you want to save the account?	Save this account.	yes
Select an import type	Specify the import method for saving again.	PrivateKey
Enter the Symbol node URL.	Specify the mijinLBENdpoint or miji- nEndpoint URL on the Outouts tab in the Cloudformation Stack.	<http: xxxxxx:300=""></http:>
Enter a profile name	Specify a profile name to invoke the ac- count.	optional
Enter your wallet password	Specify the password for your account	optional

\$ symbol-cli account generate ✓ Select the network type: > MIJIN ✓ Do you want to save the account? … yes ✓ Select an import type: > PrivateKey ✓ Enter the Symbol node URL. (Example: http://localhost:3000): … http:// →xxxxxxxxxxxxxxx.elb.ap-northeast-1.amazonaws.com:3000 ✓ Enter a profile name: … mijin-no-currency-account ✓ Enter your wallet password: … ******* ✓ Do you want to set the account as the default profile? … no

Account

Property	Value
Address	 MADIFG-N27CKA-6DY42J-UMEFJA-70KXLO-NXLAEQ-XII
Public Key	B86CDD63C3BA820C4659CF7FC3D53DA035CF8370AC3E0DBF025BEE691AED7DFA
Private Key	E911E779671BD33B26A9D424DB331A36BDD497BA62D91B27ADAA4B1350A52D43
Password	Test1234
SUCCESS Stored m	ijin-no-currency-account profile

Query the node for account information.

Please confirm that this account is in error because the node does not have a record of the balance.

\$ symbol-cli account info --profile mijin-no-currency-account

Balance transfers

Transfers balances from a balance account (mijin-have-currency-account) to a new account (mijin-no-currency-account).

Here we will transfer 100,000 cat.currency.

Announce a transfer transaction from your balance account (mijin-have-currency-account).

item	Description	value	
Enter your wallet password	Please specify the password you have set	optional	
Mosaics to transfer in the format (mosai- cId(hex) @aliasName)::absoluteAmount	The base currency (cat.currency) is sent 100,000. The base currency has a divis- ibility of 6, so it has a 6-digit decimal point, so add 6 zeros.	3BF3AF8B22CB53D8::1	
Enter the recipient address or @alias	Specify the forwarding address for the new account	MADIFGN27CKA6DY42JUMEFJA7OKXLONXLA	AEQXI
Enter a message	A message can be added to the transfer transaction	optional	
Enter the maximum fee (absolute amount)	Specifies the transaction fee. This changes with the commission mode. With commission 20000 or so (0.2cat.currency) Without fee 0 No fee 0	0	
Select the transaction announce mode	Specifies how transactions are an- nounced.	normal	

\$ √	symbol-cli tran ′Enter your wal	nsaction transferprofile mijin-have-currency-account let password: … *******
√ s	' Mosaics to tra ending 1 symbol	nsfer in the format (mosaicId(hex) @aliasName)::absoluteAmount, (Ex: .xym, @symbol.xym::1000000). Add multiple mosaics separated by commas:
••	• @cat.currency:	:1000000000
√	'Enter the reci	pient address or @alias: … MADIFGN27CKA6DY42JUMEFJA7OKXLONXLAEQXII
√	' Enter a messag	e: … test
√	' Enter the maxi	mum fee (absolute amount): … 200000
√	Select the tra	nsaction announce mode: > normal
		TRANSFER
	Max fee:	200,000
	Network type:	MIJIN
		1

Deadline:	2022-10-01 23:57:37.489
Recipient:	MADIFG-N27CKA-6DY42J-UMEFJA-70KXLO-NXLAEQ-XII
Message:	test
Mosaic (1/1):	100,000,000 cat.currency (85BBEA6CC462B244)
	Signature details
Payload:	B500000000000000496383B0C2AF6B3295D615336F48B2C299AAF38619399C40 85AC7F6CF58092EAE743D5C754DC3C149E4E5EFA8E6038519F8BAAFDDF3B05BC 41B355638528AE03FDA90ACB0B4DA564FBA3D9D3A3E67A7146A77D2F5C246BC6 7AC044AAD578E161000000001605441400D03000000000517F484B18000000 60068299BAF8940F0F1CD268C21520FB9575B9B758090BA1050001000000000 44B262C46CEABB8500E8764817000000074657374
Hash:	24FACA961CB1DF4D3F76DFFBE302D2CAA512F7D1BD424CC4E0D14ACFA7221FA4
Signer:	FDA90ACB0B4DA564FBA3D9D3A3E67A7146A77D2F5C246BC67AC044AAD578E161
✓ Do you want to	announce this transaction? yes
SUCCESS Transact	ion announced correctly
TIP To check if the symbol-cli tra	the network confirms or rejects the transaction, run the command ansaction status'

Ensure that the new account has a balance.

The account information that was in error earlier is recognized by mijin Catapult(v.2) and you can confirm that you have a balance.

<pre>\$ symbol-cli account " Processing Account Information</pre>	infoprofile mi	ljin-no-currency-ad	ccount
Property	Value		
Address	MADIFG-N27CKA-6DY42J-UMEFJA-70KXLO-NXLAEQ-XII		
Address Height	2706		
Public Key		000000000000000000000000000000000000000	۲ 000000000000000000000000000000000000
Public Key Height	0		
Importance	0		
Importance Height	0		
Balance Information			
Mosaic Id	Relative Amount	Absolute Amount	Expiration Height

1D8350FA8D4830FA 100,000 10000000000 Never

2.2.7 AWS Troubleshooting

Summarize the troubleshooting of mijin Catapult(v.2) launched on AWS Marketplace.

2.2.7.1 Restore from a backed-up snapshot

This chapter describes the procedure for restoring data on a mijin Catapult (v.2) node on AWS from a backup from a Snapshot obtained with AWS Backup.

Note:

If you want to erase the blockchain data and restore it from another node instead of from Snaoshot, you can use mijin Catapult(v.2) node resynchronization.

Stop the node completely

Blockchain data. Here, we stop at PEER node 3 as an example.

Login to PEER node 3.	mijin Catapult(v.2) EC2 instance login how to and log in to the node.
	Volume ID: vol-09cba655146356dfae Cetails Status checks Monitoring Tags Details
	Volume 10 Size Type Volume status 0 vol x00x340534556cts 0<
	Encryption IXOS kry JD XSS kry Allas XXOS kry Allas Allas XXOS kry
Note the evolution is located	Lottessatcathsharshof Muter-
Make sure it is GP3	
	<pre>§ mudo su - catapult catapult@peer1:-\$ cd nijin-catapult-package/package/peer/catapult3 catapult@peer1:-/aijin-catapult-package/package/peer/catapult3 catapult@peer1:-/aijin-catapult-package/package/peer/catapult3 catapult@peer1:-/aijin-catapult_package/package/peer/catapult3 catapult@peer1:-/aijin-catapult_package/package/peer/catapult3 catapult@peer1:-/aijin-catapult_package/package/peer/catapult3 catapult@peer1:-/aijin-catapult_package/package/peer/catapult3 catapult@peer1:-/aijin-catapult_package/package/peer/catapult3 catapult@peer1:-/aijin-catapult_package/package/peer/catapult3 catapult@peer3:-/aijin-catapult_package/package/peer/catapult3 catapult@peer3:-/aijin-catapult_package/package/peer/catapult3 catapult@peer3:-/aijin-catapult_package/package/peer/catapult3 catapult@peer3:-/aijin-catapult_package/package/peer/catapult3 catapult@peer3:-/aijin-catapult_package/package/peer/catapult3 catapult@peer3:-/aijin-catapult_package/package/peer/catapult3 catapult@peer3:-/aijin-catapult_package/package/peer/catapult3 catapult@peer3:-/aijin-catapult_package/package/peer/catapult3 catapult@peer3:-/aijin-catapult_package/package/peer/catapult3 catapult@peer3:-/aijin-catapult_package/package/peer/catapult3 s sudo shutdown -h now</pre>
mijin Catapult(v.2) and stop the EC2 instance.	
<pre>sudo su - catapult cd mijin-catapult-package/package/peer/</pre>	
sudo shutdown -h now	

Detach volume of stopped PEER node

Remove the volume attached to the node.

	Instances (1/5) w/o
	reun-cstardel X clear nites
	■ Name ▼ Instance ID Instance state ▼ Instance type ▼ Status check Alarm status
	MUIN-CATAPULT-peer3 I-08982/d68b7a2b560
	MUIN-CATAPULT-peer2 I-Ocf94a692(97a84a06 @ Running @,@, t4g.large @ 2/2 checks passed No alarms
	MUIN-CATAPULT-peer1 I-00378b62c6f296b03 @ Running @.@, t4g.large @ 2/2 checks passed No alarms
	MUNI-CATAPULT-api2 H069adcefc56666adde O Running QQ H4g.large O 2/2 checks passed No alarms
	MUIN-CATAPULT-api1 I-0555de2cet/475348 @ Running Q.Q. t4g.large @ 2/2 checks passed No alarms
	0
	=
	Instance: i-08982d6d8b7a2b560 (MIJIN-CATAPULT-peer3)
	Lietailis Security Networking Storage Status checks Honitoring Tags
	▼ Root device details
	Root device name Root device type EBS optimization
	☐ /dev/sda1 EBS disabled
	▼ Block devices
	Fitter black devices
	Volume ID Device name Volume size (GiB) Attachment status Attachment time Encrypted KMS key ID
	vol-0723249ce6a36831c /dev/sda1 30 @ Attached Tue Jan 17 2023 15:29:09 G No -
	vol-09cba65914936dfae /dev/sdf 500 C Attached Tue Jan 17 2023 15:25:09 G No -
Select the volume from PEER node 3 again	
Select the volume norm LER node 5 again.	
	Volumes (1/1) C Actions A Create volume
	Q. Search Modify volume < 1 > 🛞
	Volume ID = vol-09cba65914936dfae X Clear filters Create snapshot
	Z Name ▼ Volume ID ▼ Type ▼ Size ▼ IOPS ▼ Throughput ♥ Create snapshot Efecycle policy ▼ Avai
	2 - vvl-09cba65914956dfae ap3 5000 GB 5000 125 Delete volume 529 GMT+9 ap-n
	< Attach volume
	Detach volume
	Horee didact vooume
	Manage auto-enabled (/O
	Manage tags
	Velume ID: vol-09cba65914936dfae
From Volume, click on 'Detach volume' and press OK on the	
rish retaine, click on betaen votane and press of on the	
screen that pops up.	

Create a volume from an AWS Backup Snapshot

	Constraints and a constraints and constraints and constraints and a constraints and a constraints
	Name API ID: same districts/S48555517 (MUIN - CATAPULIT-perce) Land Treatment Same Start for same Same Land Treatment Same Start data data Same Biold cate Same * East Same * East Same * East data Same
For AWS Backup, select a Snapshot of mijin data from AMI. Skip this step if you want to select a manually acquired Snapshot.	Liberationappe network(0.2) And/of 303 p3 to to official(0.2.4)
	Constraints of the second
Click on 'Create volume from snapshot'.	
Select volume type gp3 Select availability zone Stop the node completely.	<text><text><text></text></text></text>
Select availability zone stop the node completely.	

Attach the restored volume to the PEER node

Attach the encrypted volume to the node

	Volumes (1/1)
	Q, Seech Nodfy vskere < 1 > @
	vol. 07663888/7563006 X Clear filters To Name T Visiant D T Type T Size T 10PS T Translater T Costs snapted tifetyde policy
	- vol-0065886#0530045 gp2 500 GB 1500 - Attack volume
	Detach volume Corror detach volume
	Nanoprasterended VD
	Hanape tape
Select the encrypted volume and click 'Attach volume'.	
	EC2 > Volumes > vol-09663886ff96300d6 > Attach volume
	Attach volume to
	Attach a volume to an instance to use it as you would a regular physical hard disk drive.
	Basic details
	(i) This volume is encrypted and it can only be attached to an instance that supports EBS encryption. Learn more
	Volume ID
	D vol-09663886ff96300d6
	Availability Zone
	ap-northeast-1a
	Instance Info
	i-08982d6d8b7a2b560 🔻 🖸
	Only instances in the same Availability Zone as the selected volume are displayed.
	Device name Info
	/dev/sdf
	Recommended device names for Linux: /dev/sda1 for root volume. /dev/sd[f-p] for data volumes.
	(c) Newer Linux kernels may rename your devices to /dev/xvdf through /dev/xvdp internally, even when the device name entered here (and shown in
	the details) is /dev/sdf through /dev/sdp.
	Canzal Attach valume
Select instance PEER node 3 and specify the same nath as the detached	
selection instance r EER node 5 and speeny the same path as the detached	
volume.	
Click on 'Attach volume '	
	Instances (1/5) we C Connect Instance state Actiens Userch instances
	MURICATAPULT X Clear filters
	Nerre V Instance ID Instance state V Instance V Insta V Instance V Instance V Instance V Ins
	Promit-Conversal-speens EX000520065877220400 (c) Stopped 02(c) Mag large - No alarms NUIN-CASUPULT-peers2 EX00459977264406 (c) Running (C) Mag large (c) 2/2 chods passed No alarms
	MUN-CATAPULT-peer1 IO03789626/296003 Ø huming Ø Q Moj large Ø 222 decks passee No James MUN-CATAPULT-peer1 IO00789626/296003 Ø huming Ø Q No James Ø huming Ø James Ø James Ø huming
	MUM-CRUPUT-apH id6556st0et115548 @ Auming @Q using @ Q using @ @ Q using @ @ Q using @ @ Q using @ @ @ Q using @
	Instance: i-08982d6d8b7a2b560 (MIJIN-CATAPULT-peer3)
	Detalla Security Networking Storage Status checks Monitoring Tags
	▼ Reet drvíce details
	Root device name Root device type BBS optimization C Alleroidant BBS disabled
	▼ Black devices
	Q., Pitter Hook devices
	Values ID Device name Values size (081) Attachment status Attachment time Encrypted KMS key ID vel 072324/bode36631c //dev/s/ki1 30 Q Attached Toe; Jai 17 2023 15:25:09 6 No =
	vel 0966388679630006 //tec/cdf 500 🥥 Attached Tue Jan 17 2023 1633 07 6 Yes fo0545b2-8x05-4x04-betic-f5
	▼ Recent root volame replacement tasks
	Q, Ther tests Replace root volume
	Task 10 Task state Start time Completion time Tags
	INVITEERI, IRJANEE ILUU IRJANEE ILUU IRJANEE ILUU IRJANEE ILUU IRJANEE ILUU
Verify that the restored volume is attached.	
, , , , , , , , , , , , , , , , , , , ,	

Start up a stopped PEER node

Start up the stopped node and start up mijin Catapult(v.2) as well.

	Instances (1/5) into Connect Instance state A Actions V Launch instances V
	Q. Find instance by attribute or tag (case-sensitive)
	MUIN-CATAPULT X Clear filters Start instance
	Name Instance ID Instance state Status check Alarm status
	MUIN-CATAPULT-peer5 I-089824663857a25560 Stopped Terminite instance - No slarms
	MUN-CATAPULT-peer2 I-Oc194a69c97a84a06 @ Running @pet_ tregtarge @ 2/2 checks passed No alarms
	□ MUIN-CATAPULT-peer1 I-00378b62c6f296803 ⊘ Running @,@, t4g.large ⊘ 2/2 checks passed No alarms
	MUNI-CATAPULT-api2 i-O65bdefet5665ade QRunning @Q t4gLarge Q2/2 checks passed No alarms
	Moune-chilerouti-spri Possoulzation-rose
	Instance: i-08982d6d8b7a2b560 (MIJIN-CATAPULT-peer3)
	Details Security Networking Storage Status checks Monitoring Tags
	▼ Root device details
	Root device name Root device type EBS optimization /dev/sda1 EBS disabled
	▼ Block devices
	Q Filter block devices
	Volume ID Device name Volume size (Gi8) Attachment status Attachment time Encrypted KMS key ID
	vol-0725249cc9a36831c /dev/xda1 30 🕑 Attached Tue Jan 17 2023 15:29:09 G No -
	vol-09663886ff96300d6 /dev/sdf 500 🥑 Attached Tue Jan 17 2023 16:53:07 G Yes f40d4fa2:84b5-40f4-bd5c-f5
From the list of instances, check PEER node 3 and click 'Start	
Instance'.	
Login to PEER node 3.	mijin Catapult(v.2) EC2 instance login how to and log in to the
0	node
	Filesyntem Size Used Avsil Uset Mounted on /dev/root 300 8.10 230 28 /
	umpring 3.3-50 0.3-50 0.9-70489/ahm tmpfs 3.3-60 0.3-50 0.9-70489/ahm tmpfs 78714 8007 786N 1% /run
	tmpfs 5.0N 0 5.0N 0 /run/lock tmpfs 3.90 0 3.90 0 /syst fs/group (dw//lock) 250 0 3.90 0 /systesson.com
	/der/loop3 20% 20% 0 100% /smap/macco-sm-spect/2012 /der/loop3 56% 56% 0 100% /smap/macco-sm-spect/2012
	/dev/loop2 114H 114H 0 100B /snap/core/13425 /dev/loop5 64H 64H 0 100P /snap/core2/1423 /dev/loop5 64H 64H 0 100P /snap/core2/1423
	/dev/loop4 5tm 5tm 0 100 /smap/sdc14/sd5 /dev/loop7 71N 71N 0 100 /smap/sdc14922 /dev/loop6 66N 0 100 /smap/sdc22753
	/dev/nvmeini 500G 3.7G 497G 10 /mnt/mijin/blocks
	s audo su - catapuit entapuit@perl:-5 entapuit@perl:-5 en iiin-catapuit-package/package/per/catapuit/
	<pre>cstapult@peerlin/mijin-cstapult-package/package/peer/cstapult@ cstapult@peerlin/mijin-cstapult-package/package/peer/cstapult@cocker-compose up -d Constonerstore/Sect Sectore/Sec</pre>
	creating to the start of the st
	Name Command State Ports
	<pre>cataputiper:://wijin-cataputiper://wijin-cataputiper://wijin-cataputiper://wijin-cataputiper://wijin-cataputiper-node_1</pre>
	<pre>peer-node_1 2022-49-09 07106114.490243 0x900076838776e7001 <debug> (importance)storage[mportanceCalculatorPactory.opp699) writing importances to file data/importance/wip/00000001040.data for height 5280 news-node_1 2022-49-09 0710614.520202 0x9000763837767000 <debug> (it)la:starktonser.b%3) nushing senge 'DysTemortanceSalculator:recalculator news-node_1 2022-49-09 0710614.520202 0x9000763837767000 <debug> (it)la:starktonser.b%3) nushing senge 'DysTemortanceSalculator:recalculator news-node_1 2022-49-09 0710614.520202 0x9000763837767000 </debug> (it)la:starktonser.b%3) nushing senge 'DysTemortanceSalculator:recalculator:recalculator</debug></debug></pre>
	peer-node 1 2022-09-09 07:06:14.520348 0x000072838772e700; <debug> [importance::PosImportanceCalculator.cpp#88] recalculated importances (5 / 14 eligi e) at height 5320</debug>
	peer-nobg_1 [2022-09-09 0706114-520397 000007E3877E27000 doings-fully-backgroupseched (01.13+1548KC.09967.http://doings.com/doings/fully-backgroupseched
	peer-node_1 2022-09-09 07:06:14.748499 0x00007E8J8776=700: <pre>cdebugb (oache::SupplementalDataStorage.cpp#32) wrote last recalculation beight 5320 last f alized beight 5004 dynamic fee multiplier 0 total transactions 34 (score = [0, 548521710748214720], height = 5343)</pre>
	<pre>per-node_1 2022-09-09 07106115.29380 0x0000783087627001 <a href="https://www.intel.actionates.org/compilial-completential</th></pre>
	(heights 5027 - 5343) [AMP2CC16] from Remote_Pull with size 11668 7928), last consumer is 1 elements behind pers-mode_1 2022-09-09 07106:15,3335795 050007653867167000: ddbug= (consumers:NNwRDlockConsumer.cep164) forwarding a new block with height 5144 pers-mode_1 2022-09-09 07106:15,335795 050007653867167000: ddbug= (consumers:NNwRDlockConsumer.cep164) forwarding a new block with height 5144 pers-mode_1 2022-09-09 07106:15,335795 050007653867167000: ddbug= (consumers:NNwRDlockConsumer.cep164) forwarding a new block with height 5144 pers-mode_1 2022-09-09 07106:15,335795 050007653867167000: ddbug= (consumers:NNwRDlockConsumer.cep164) forwarding a new block with height 5144 pers-mode_1 2022-09-09 07106:15,335795 050007653867167000: ddbug= (consumers:NNwRDlockConsumer.cep164) forwarding a new block with height 5144 pers-mode_1 2022-09-09 07106:15,335795 050007653867167000: ddbug= (consumers:NNwRDlockConsumer.cep164) forwarding a new block with height 5144 pers-mode_1 2022-09-09 07106; ddbug= 050007653867167000; ddbug= 05000765387167000; ddbug= 05000765387167000; ddbug= 05000765387167000; ddbug= 05000765387167000; ddbug= 0500076887187000; ddbug= 05000765387167000; ddbug= 0500000; ddbug= 050000; dd
	eights 544 - 544 - 546 (SOCGA) eepty from Renct Push vith size 3768), last consumer is 0 elements behind entapult@peerls-/mijim-entapult-package/peer/entapulte
	<pre>cstapultBper1:r/Mijin-cstapult-packape/package/per/cstapult\$ docker-compose logstail=10 Attaching to cstapult_per-node 1 per-node 1 per</pre>
	eights 5346 - 5346) [7804Ab27] empty from Remote_Push with size 3768), last consumer is 0 elements behind peter-mode 1 [202-09-09 07:06:50.558038 0x00007783la5152700: <debug> (disruptor:cpp043) disruptor queuing element 5 (1 blocks (heights 5346 -</debug>
	Jab [D000000] Teen Restord vite Site 3240 (2000) [2000]
	peer-node_1 2022-09-09 07:06:52,387527 0x00007#3a5152700; <debug> (ionet::PacketSocket.cpp#721) invoking user callback after successful async_accept 0x00000000000053</debug>
	061 Accepted per-node 1 2022-09-09 07:06:52.387762 0x0000788381527001 <debug> (net::PacketReaders.cpp1258) accepted connection from '10.0.3.206' as #2DM8AR358AC7</debug>
	TEC97101A4ABEC9791A1655E20613CC187ACE186ADBTE9AAD per-rode 1 202-09-09 07106154.123110 0x0000783A5152700: <info> (ionet::PacketSocket.cpp#850) connected to peer1.mijin.internal [10.0.2.78:7900] (00</info>
	peer-node 2022-09-09 07:06:55.123912 0x00007£83a5152700: <debug> (ionet::PacketSocket.cpp#513) socket close triggered by destruction [000000000000]], 7mm elapsed</debug>
	percense 2022-09-09 07100150-127186 0x00007881a59537001 <info> (info> (info></info>
), iis elapsed cstapult/peerl=/mijin-cstapult-packsge/packsge/peer/cstapult\$
Make sure the disk is mounted, and start up mijin	
Catapult(v.2).	
ai -n	
sudo su - catapult	
oucuputo	
cd mijin-catapult-package/package/peer/	
⇔calapuil/	
rm -rf /mnt/mijin/blocks/data/*.lock	
,,,	
docker-compose up -d	
docker-compose ps	
COULOSE DS	

2.2.7.2 How to respond to availability zone (AZ) failures

This chapter explains how to respond to a failure in the availability zone (AZ) of a mijin Catapult(v.2) VPC on AWS.

mijin Catapult(v.2) Product Edition Configuration

mijin Catapult(v.2) In the production version, the VPC is located in one region and the nodes are distributed across two availability zones (AZs).

By enabling ELB installation in the deployment parameters, service can continue even if one of the AZs fails.

mijin Catapult(v.2) can update blockchain data with a single PEER node.

If you want to access it from a program, etc., a single API node is all you need to continue accessing it.

For example, even if the entire service surrounded by the left AZ stops, as shown in the figure below, mijin Catapult(v.2) will not stop.



How to respond after AZ restoration

After AZ restoration, the response is simple. mijin Catapult(v.2) automatically connects to the node with the running blockchain data after recovery (after the EC2 instance is started) and starts synchronizing the data. Therefore, no special work is required for restoration. To check if a node is restored, you can check by command or browser as follows.

http://{mijin endpoint}:3000/node/peers

```
$ curl http://mijin エンドポイント:3000/node/peers
    {
        "version": 0,
       "publicKey": "9073B0A623934996A9AAAC85C6DEC8540AE17258D6997E42E00100CCFE6848EF",
        "networkGenerationHashSeed":
↔ "B319300B02B12264B7DF867F0EFD583CC3C6E65ED2732E3FD77BBC1DE8E00E85",
        "roles": 70,
        "port": 7900,
        "networkIdentifier": 96,
        "host": "api1.mijin.internal",
        "friendlyName": "api1.mijin.internal"
    },
        "version": 0,
       "publicKey": "82DA8AE358AC7DF7BC97103A6ABE0F791A1655E20633CC387ACE198A0B7E9AA0",
        "networkGenerationHashSeed":
→ "B319300B02B12264B7DF867F0EFD583CC3C6E65ED2732E3FD77BBC1DE8E00E85",
        "roles": 69,
        "port": 7900,
        "networkIdentifier": 96,
        "host": "peer2.mijin.internal",
        "friendlyName": "peer2.mijin.internal"
    },
        "version": 0,
       "publicKey": "4EE257A9DD6D3F19331A467C6C76BA86B50B1297181E32C7A83C1184B666996C",
        "networkGenerationHashSeed":
→ "B319300B02B12264B7DF867F0EFD583CC3C6E65ED2732E3FD77BBC1DE8E00E85",
        "roles": 69,
        "port": 7900,
        "networkIdentifier": 96,
        "host": "peer1.mijin.internal",
        "friendlyName": "peer1.mijin.internal"
    },
        "version": 0,
       "publicKey": "C158D513266B2C04216CDC03AD99036757A41AD2AFDF59D2A67F6D2D4F8CC84F",
        "networkGenerationHashSeed":
→ "B319300B02B12264B7DF867F0EFD583CC3C6E65ED2732E3FD77BBC1DE8E00E85",
        "roles": 69,
        "port": 7900,
        "networkIdentifier": 96,
        "host": "peer3.mijin.internal",
        "friendlyName": "peer3.mijin.internal"
```

}			
]			

If a node cannot be confirmed above, the blockchain data may be corrupted by a sudden node. In that case, the mijin Catapult(v.2) node resynchronization or Restore from a backed-up snapshot to recover the node.

2.2.8 AWS MarketPlace mijin Catapult(v.2) FAQ List

This is a list of FAQs on mijin Catapult(v.2) deployed in AWS MarketPlace.

2.2.8.1 Product Version FAQ List

_

Q.Is it possible to carry over data from the Free Trial version? A.Data cannot be transferred.

_

Q.Can I use it for commercial purposes? A.Possible.

—

Q.Where is the mijin license fee included? A.mijin license fees are charged by AWS. As with the cost of EC2 instances, billing is added as an hourly usage fee.

_

Q.Is there an initial cost to start up? A.There is no initial cost. However, there is a pay-as-you-go mijin license fee and AWS usage fee.

Q.Is there a free trial period for the product version?

A.There is no free trial period for the product version.

We have a separate free trial version available on the . /about_aws trial board.

—

Q.Who can I contact for support?

A.Please refer to the following for contact information, which varies depending on the case.

Technical inquiries about mijin or problems during construction (paid support) For technical inquiries regarding mijin, please contact us from the following link, as it is necessary to purchase a paid support ticket.

https://mijin.io/en/aws_contact

Trouble on AWS.

https://aws.amazon.com/jp/premiumsupport/tech-support-guidelines/

_

Q.What is the version of mijin Catapult (v.2) product version?

Α.

catapult-server: 1.0.3.8 catapult-rest: 2.5.0

(2025/6/10 時点)

_

Q.Is it possible to upgrade?

A.It is possible to upgrade.

However, if there is a large version difference, it may not be possible to upgrade. By purchasing paid support, you will receive support and announcements for version upgrades.

https://mijin.io/en/aws_contact

_

Q.I tried to set up a second mijin Catapult(v.2) in the same region and it failed.

A.Deployment parameters when launching a second or later version of mijin Catapult(v.2) The value of '**mijinStackAlreadyExist**'should be set to **YES**.

Q.I would like to build a disaster recovery environment.

A.The product version is deployed in a multi-AZ environment with nodes distributed as standard. See AWS MarketPlace mijin Catapult(v.2) Recovery Strategy with Architectural Patterns for more information.

_

Q.I want to rotate the data in the AWS Systems Manager Parameter Store.

A.Data in the AWS Systems Manager Parameter Store is only used during initial deployment and is not Saved as **backup**.

The Parameter Store contains the certificate data used for encrypted communication of the node, so if you want to update it, use . /…/tech/troubles/replace_node_key.

_

Q.Does mijin work with arm(Graviton) instances?

A.AWS Marketplace provides both x86_64 and arm versions.

AWS MarketPlace Enterprise x86_64 Version AWS MarketPlace Enterprise arm64 Version

Q.Is there any difference between the arm(Graviton) version and the x86_64 version? A.As for mijin, it is optimized for each CPU architecture, but the speed is the same and the license fee is the same.

Starting up in arm will reduce the running cost of AWS usage fees. For price differences, please refer to the simulated data in each instance of the minimum requirements.

(* Simulation data does not include mijin license fee)

x86_64 構成 https://calculator.aws/#/estimate?id=3df2b4611ffde3cc598ffc6fec9aff49b8a986b2 arm64 configuration https://calculator.aws/#/estimate?id=c3bdc61df9a07f9760fdb790680cec8d3807b0dc

_

2.2.8.2 Free Trial Version FAQ List

—

Q.Are there any functional limitations?

A.There are no restrictions on mijin functions, but the following restrictions apply.

1.the base currency is limited to a small amount of '2,000 cat.currency'.

2.Mosaic, Namespace, and transaction issuance fees are required.

—

Q.Is there a limit to the length of use?

A.There is no set usage period in the system, but since this is a test license, it cannot be used for commercial purposes, support inquiries cannot be made, and so on.

_

Q.Is there a commercial version available?

A.The commercial version is available for commercial use.

For more information, check . /about_aws for more information.

_

Q.To what extent can you provide support for mijin's features?

A.The free trial version is a test license and does not provide support for mijin functions or development.

If you need support, you can do so by using the commercial version and signing a support contract.

_

Q.What is the version of mijin Catapult (v.2) free trial?

Α.

catapult-server: 1.0.3.6 catapult-rest: 2.4.3

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2.2.9 AWS MarketPlace mijin Catapult(v.2) 利用料金比較表

AWS MarketPlace で展開する mijin Catapult(v.2) では、AWS の EC2 インスタンスを自由に選択すること ができます。

Comparative table of server usage fees incurred outside of license fees.

Proces- sor	EC2	EBS	VPC	Region	Instance Payment Methods	12 months(\$)	monthly amount(\$)	3 months approxi- mate(\$)	Monthly Amount (yen)	Approx- imate 3 months (yen)	estimate
x86	t3.large * 5	GP2 30GB	New	us-east- 1	Onde- mand	4914.00	409.50	1227	¥57,330	¥171,780	見積
				us-east- 1	Re- served 1 year	3399.84	283.32	849	¥39,665	¥118,860	見積

Proces- sor	EC2	EBS	VPC	Region	Instance Payment Methods	12 months(\$)	monthly amount(\$)	3 months approxi- mate(\$)	Monthly Amount (yen)	Approx- imate 3 months (yen)	estimate
				ap- north- east1	Onde- mand	6385.32	532.11	1596	¥74,495	¥223,440	見積
				ap- north- east1	Re- served 1 year	4419.88	368.32	1104	¥51,565	¥154,560	見積
			既存	us-east- 1	Onde- mand	4124.64	343.72	1029	¥48,121	¥144,060	見積
				us-east- 1	Re- served 1 year	2610.48	217.54	651	¥30,456	¥91,140	見積
				ap- north- east1	Onde- mand	5297.64	441.47	1323	¥61,806	¥185,220	見積
				ap- north- east1	Re- served 1 year	3332.20	277.68	831	¥38,876	¥116,340	見積
	API c5n.2xlage * 2 PEER c5n.xlarge * 3	IO1 IOPS100 130GB* 2 IO1 IOPS100 80GB* 3	New	us-east- 1	Onde- mand	15474.96	1289.58	3867	¥180,541	¥541,380	見積
				us-east- 1	Re- served 1 year	10018.84	834.90	2502	¥116,886	¥350,280	見積
				ap- north- east1	Onde- mand	19378.92	1614.91	4842	¥226,087	¥677,880	見積
				ap- north- east1	Re- served 1 year	12506.88	1042.24	3126	¥145,914	¥437,640	見積
			既存	us-east- 1	Onde- mand	14685.60	1223.80	3669	¥171,332	¥513,660	見積
				us-east- 1	Re- served 1 year	9229.48	769.12	2307	¥107,677	¥322,980	見積
				ap- north- east1	Onde- mand	18291.24	1524.27	4572	¥213,398	¥640,080	見積
				ap- north- east1	Re- served 1 year	11419.20	951.60	2853	¥133,224	¥399,420	見積
Arm	t4g.large	GP2 30GB	New	us-east- 1	Onde- mand	4213.20	351.10	1053	¥49,154	¥147,420	見積
				us-east- 1	Re- served 1 year	2994.84	249.57	747	¥34,940	¥104,580	見積
				ap- north- east1	Onde- mand	5404.20	450.35	1350	¥63,049	¥189,000	見積
				ap- north- east1	Re- served 1 year	3844.88	320.41	960	¥44,857	¥134,400	見積
			既存	us-east- 1	Onde- mand	3423.84	285.32	855	¥39,945	¥119,700	見積
				us-east- 1	Re- served 1 year	2205.48	183.79	549	¥25,731	¥76,860	見積
				ap- north- east1	Onde- mand	4316.52	359.71	1077	¥50,359	¥150,780	見積

Table 12 - continued from previous page

Proces- sor	EC2	EBS	VPC	Region	Instance Payment Methods	12 months(\$)	monthly amount(\$)	3 months approxi- mate(\$)	Monthly Amount (yen)	Approx- imate 3 months (yen)	estimate
				ap- north- east1	Re- served 1 year	2987.20	248.93	744	¥34,851	¥104,160	見積
	API c6g.2xlage * 2 PEER c6g.xlarge * 3	IO1 IOPS100 130GB* 2 IO1 IOPS100 80GB* 3	New	us-east- 1	Onde- mand	10569.36	880.78	2640	¥123,309	¥369,600	見積
				us-east- 1	Re- served 1 year	7134.84	594.57	1782	¥83,240	¥249,480	見積
				ap- north- east1	Onde- mand	13197.86	1099.82	3297	¥153,975	¥461,580	見積
				ap- north- east1	Re- served 1 year	8873.88	739.49	2217	¥103,529	¥310,380	見積
			既存	us-east- 1	Onde- mand	9780.00	815.00	2445	¥114,100	¥342,300	見積
				us-east- 1	Re- served 1 year	6345.48	528.79	1584	¥74,031	¥221,760	見積
				ap- north- east1	Onde- mand	12110.18	1009.18	3027	¥141,285	¥423,780	見積
				ap- north- east1	Re- served 1 year	7786.20	648.85	1944	¥90,839	¥272,160	見積

Table 12 - continued from previous page

Technical

3.1 mijin Catapult(v.2) Basics

3.1.1 mijin Catapult(v.2) How to access

mijin Catapult(v.2) access to the API Rest endpoint of the API node allows blockchain operations. Below you can check the current number of blocks in the blockchain with the command

```
$ curl -Ss http://mijin エンドポイント:3000/chain/info | jq -r
{
    "scoreHigh": "8",
    "scoreLow": "16778237146341708801",
    "height": "2693365",
    "latestFinalizedBlock": {
        "finalizationEpoch": 8833,
        "finalizationPoint": 5,
        "height": "1413092",
        "hash": "C6D03C81BC98C5152E429CA4D9B03BEC9C1229DCE5B79B267EA250A4D43BAAD6"
    }
}
```

item	Description
height	Current block height of blockchain
latestFinalizedBlock.height	Block height of the determined blockchain

You can also check it with Chrome or other browsers.



Others can also be accessed via sdk or cli.

For access to CLI, please refer to mijin Catapult(v.2) manipulation.

3.1.2 mijin Catapult(v.2) How to check status

The status of each mijin node can be obtained from REST. You can check it directly in your browser or curl. You can also check the same in sdk.

As for the REST response, it will be the same as Symbol from Nem.

https://symbol.github.io/symbol-openapi/v1.0.0/

3.1.2.1 Check block height

/chain/info

item	Description
height	Current block height
latestFinalizedBlock	finalize block
finalizationEpoch	•
finalizationPoint	•
height	•

3.1.2.2 Check the REST version

/node/server

```
$ curl -Ss http://mijin-catapult-1-nlb-rest-eef0ebffe49c4aa3.elb.ap-northeast-1.

amazonaws.com:3000/node/server | jq -r
{
    "serverInfo": {
        "restVersion": "2.3.5",
        "sdkVersion": "2.3.5",
    }
}
```

item	Description
restVersion	version of rest
sdkVersion	version of catapult-sdk used by rest

3.1.2.3 Check node information

/node/info

item	Description
publicKey	Public key used in Harvest
networkGenerationHashSeed	Blockchain-specific GenerationHash settings created
roles	Node Roles (api/peer/dual/voting)
port	Communication port between nodes
networkIdentifier	Network Type
host	Host name of the node on which it is running
friendlyName	Friendly name of node
nodePublicKey	Public key for node

3.1.2.4 Check the connected node

/node/peers

```
$ curl -Ss http://mijin-catapult-1-nlb-rest-eef0ebffe49c4aa3.elb.ap-northeast-1.
→amazonaws.com:3000/node/peers | jq -r
[
    "version": 0,
   "publicKey": "DB8D9DD59D78AE62E157824305DE31B9D415AA217EFE1DF14A7361E9D20E7456",
    "networkGenerationHashSeed":
→ "2DE20B93EBE048A3BA132CC9874BCABBC21C87E18FE9836B8D5D002E57640D4B",
   "roles": 69,
   "port": 7900,
   "networkIdentifier": 96,
   "host": "peer1.mijin.internal",
   "friendlyName": "peer1.mijin.internal"
 },
  {
   "version": 0.
    "publicKey": "22722F1534AE77DA44A065C0E2ACB125CB66FB45E80403A183EFEBE222BF3D90",
    "networkGenerationHashSeed":
→ "2DE20B93EBE048A3BA132CC9874BCABBC21C87E18FE9836B8D5D002E57640D4B",
   "roles": 69,
    "port": 7900,
   "networkIdentifier": 96,
    "host": "peer2.mijin.internal",
    "friendlyName": "peer2.mijin.internal"
 },
  {
   "version": 0,
   "publicKey": "239CC13A2B3D112C4146415EE532146D5338614BBBAD1A1E2E8E4690638F07D9",
   "networkGenerationHashSeed":
→ "2DE20B93EBE048A3BA132CC9874BCABBC21C87E18FE9836B8D5D002E57640D4B",
   "roles": 69,
   "port": 7900,
   "networkIdentifier": 96,
   "host": "peer3.mijin.internal",
   "friendlyName": "peer3.mijin.internal"
 },
   "version": 0,
   "publicKey": "E4BF3706483B4D42243F3DCB2625021C3E3AE7C253CC466154EEDF9775012C20",
    "networkGenerationHashSeed":
→ "2DE20B93EBE048A3BA132CC9874BCABBC21C87E18FE9836B8D5D002E57640D4B",
```
```
"roles": 70,
"port": 7900,
"networkIdentifier": 96,
"host": "api1.mijin.internal",
"friendlyName": "api1.mijin.internal"
}
```

item	Description
publicKey	Public key used in Harvest
networkGenerationHashSeed	Blockchain-specific GenerationHash settings created
roles	Node Roles (api/peer/dual/voting)
port	Communication port between nodes
networkIdentifier	Network Type
host	Host name of the node on which it is running
friendlyName	Friendly name of node
nodePublicKey	Public key for node

3.1.2.5 Check the total number of transactions and total number of accounts

/node/storage

```
$ curl -Ss http://mijin-catapult-1-nlb-rest-eef0ebffe49c4aa3.elb.ap-northeast-1.

amazonaws.com:3000/node/storage | jq -r
{
    "numBlocks": 12322,
    "numTransactions": 34,
    "numAccounts": 14
}
```

item	Description
numBlocks	Current block height
numTransactions	Total number of transactions issued in the past
numAccounts	Total number of accounts used in the past

3.1.2.6 Check network type

` /network `

item	Description
name	The network name used mijin or mijin-test.
description	Network Description

3.1.2.7 Check the status of a node's container

/node/health

item	Description
apiNode	api-node container status up or down.
db	db container status up or down.

3.1.2.8 Check the settings for the entire blockchain

/network/properties

```
$ curl -Ss http://mijin-catapult-1-nlb-rest-eef0ebffe49c4aa3.elb.ap-northeast-1.
→amazonaws.com:3000/network/properties | jq -r
{
  "network": {
   "identifier": "mijin",
   "nemesisSignerPublicKey":
→ "12086D4CB80CB6461887427BD49ED22D3914117526F573CC6F9937FC19DB2F73",
   "nodeEqualityStrategy": "host",
   "generationHashSeed":
→ "2DE20B93EBE048A3BA132CC9874BCABBC21C87E18FE9836B8D5D002E57640D4B",
   "epochAdjustment": "1560294000s"
 },
  "chain": {
   "enableVerifiableState": true,
    "enableVerifiableReceipts": true,
    "currencyMosaicId": "0x61D0'A72B'3C62'5448",
    "harvestingMosaicId": "0x1248'680A'CB99'E205",
    "blockGenerationTargetTime": "15s",
    "blockTimeSmoothingFactor": "3000",
   "importanceGrouping": "40",
   "importanceActivityPercentage": "5",
   "maxRollbackBlocks": "0",
   "maxDifficultyBlocks": "60",
   "defaultDynamicFeeMultiplier": "0",
   "maxTransactionLifetime": "24h",
   "maxBlockFutureTime": "500ms",
    "initialCurrencyAtomicUnits": "8'998'999'998'000'000",
    "maxMosaicAtomicUnits": "9'000'000'000'000'000",
    "totalChainImportance": "15'000'000",
    "minHarvesterBalance": "1'000'000",
    "maxHarvesterBalance": "15'000'000",
    "minVoterBalance": "1'000'000",
    "votingSetGrouping": "160",
    "maxVotingKeysPerAccount": "3",
```

```
"minVotingKeyLifetime": "72",
    "maxVotingKeyLifetime": "26280",
    "harvestBeneficiaryPercentage": "10",
    "harvestNetworkPercentage": "5",
    "harvestNetworkFeeSinkAddress": "MBVF6QLFNKAXDBZLJYBPBT2YYKMJW7UE7GH7RTY",
    "maxTransactionsPerBlock": "6'000"
  },
  "plugins": {
    "accountlink": {
      "dummy": "to trigger plugin load"
    },
    "aggregate": {
     "maxTransactionsPerAggregate": "1'000",
      "maxCosignaturesPerAggregate": "25",
      "enableStrictCosignatureCheck": false,
      "enableBondedAggregateSupport": true,
      "maxBondedTransactionLifetime": "48h"
    },
    "lockhash": {
      "lockedFundsPerAggregate": "0",
      "maxHashLockDuration": "2d"
    },
    "locksecret": {
      "maxSecretLockDuration": "30d",
      "minProofSize": "1",
     "maxProofSize": "1000"
    },
    "metadata": {
      "maxValueSize": "1024"
    },
    "mosaic": {
     "maxMosaicsPerAccount": "1'000",
      "maxMosaicDuration": "3650d",
      "maxMosaicDivisibility": "6",
      "mosaicRentalFeeSinkAddress": "MBKRTIOKHE34GF7J5WZDW6VLXEDYFRFFURN2EZA",
      "mosaicRentalFee": "0"
    },
    "multisig": {
     "maxMultisigDepth": "3",
      "maxCosignatoriesPerAccount": "25",
      "maxCosignedAccountsPerAccount": "25"
    },
    "namespace": {
      "maxNameSize": "64",
      "maxChildNamespaces": "256",
      "maxNamespaceDepth": "3",
      "minNamespaceDuration": "1m",
      "maxNamespaceDuration": "3650d",
      "namespaceGracePeriodDuration": "30d",
      "reservedRootNamespaceNames": "xem, nem, user, account, org, com, biz, net, edu,
mil, gov, info",
      "namespaceRentalFeeSinkAddress": "MBWRFMKEJRDUZC5WEW2PFYG374AI444HL2WQX6A",
      "rootNamespaceRentalFeePerBlock": "1",
      "childNamespaceRentalFee": "0"
    },
    "restrictionaccount": {
      "maxAccountRestrictionValues": "512"
```

```
},
    "restrictionmosaic": {
        "maxMosaicRestrictionValues": "20"
},
    "transfer": {
        "maxMessageSize": "1024"
     }
}
```

For this set value, see the

3.1.2.9 Check transaction fees

/network/fees/transaction

```
$ curl -Ss http://mijin-catapult-1-nlb-rest-eef0ebffe49c4aa3.elb.ap-northeast-1.

→amazonaws.com:3000/network/fees/transaction | jq -r

{

"averageFeeMultiplier": 0,

"medianFeeMultiplier": 0,

"highestFeeMultiplier": 0,

"lowestFeeMultiplier": 0,

"minFeeMultiplier": 0

}
```

item	Description
averageFeeMultiplier	Multiplier value of average (automatic)
medianFeeMultiplier	Median multiplier value (automatic)
highestFeeMultiplier	Maximum multiplier value used
lowestFeeMultiplier	Minimum multiplier value used
minFeeMultiplier	Minimum required multiplier value set for the node; if 0, no fee mode

3.2 mijin Catapult(v.2) manipulation

Symbol, a public blockchain and mijin, are originally the same and are OSS under a dual license. Therefore, Symbol's tools can also be used with mijin. In this example, we will operate a test for transferring money with mijin Catapult(v.2).

Warning:

Symbol-cli is a Public Archive and may not work properly. Symbol-sdk must be a forked version from the original symbol.

symbol-sdk is a custom sdk forked for mijin.

3.2.1 mijin account creation

This chapter describes the account operations that must be performed in order to operate mijin. Operation will be performed on Linux (Ubuntu 20.04), so a minimum understanding of Linux operation is assumed.

Note: mijin Catapult(v.2) to operate, you create an account and use that account to submit transactions. Also note that you must have a base currency (cat.currency) balance in your account if you are in commissionable mode as specified during deployment.

3.2.1.1 Install nodejs and yarn

Install nodejs to use mijin-catapult-tools. Install nodejs using NodeSource

```
$ curl -fsSL https://deb.nodesource.com/setup_14.x | sudo -E bash - && sudo apt-get
install -y nodejs
$ node --version
$ sudo npm install -g yarn
```

3.2.1.2 Installing mijin-catapult-tools

Use yarn to install mijin-catapult-tools.

```
$ yarn global add @tech-bureau/mijin-catapult-tools
$ echo 'export PATH="$HOME/.yarn/bin:$PATH"' >> ~/.bashrc && source ~/.bashrc
```

Verify that mijin-catapult-tools is available.

\$ mijin-catapult-tools

3.2.1.3 Create an account

First, let's create an account to be used for testing. Here we will use **test1Account test2Account** and store them in mijin.json.

Create Account

```
$ mijin-catapult-tools account generate -u http://localhost:3000 -w mijin.json -s
2023-01-17T06:34:59.412Z [info] : mijin URL: http://localhost:3000
2023-01-17T06:34:59.413Z [info] : Network: 96
2023-01-17T06:34:59.413Z [info] : Mosaic Currency Id: 268CF9B2D33FBD22
2023-01-17T06:34:59.413Z [info] : Mosaic Harvest Id: 4C39D26C386E3182
2023-01-17T06:34:59.413Z [info] : Start Account Generate...
2023-01-17T06:34:59.475Z [info] : Write Config File: mijin.json
2023-01-17T06:34:59.476Z [info] : New Account: {
    "url": "http://localhost:3000",
    "workAccount": {
```

```
"publicKey": "425F06A8870381A00BD83E2D1083BB690F9FCB815F0919DFFA1A53A68E144D06",
 "privateKey": "9E9C660164AB344030DF5E77539952D9F5B380311C978369BA08923F577D8DAB",
 "address": "MC5VTRZ07IGJUG2VPQXBD4GD04A74YLFUCVZZGI"
},
"balanceAccount": {
 "publicKey": "",
 "privateKey": "".
 "address": ""
},
"mainAccount": {
 "publicKey": "F2985009341A526B17E954EB6EA3EC77E1A0B33AE31EB29F86A69D9BB283AF67",
 "privateKey": "FF9A552ED35D930378F1E6B349A677771F19A06BCA0C4D5DCA621F354F5C6956",
 "address": "MCV66SABR6MBWT2I56YI3ULCPYWREJFX5DHHGDQ"
},
"keylink": {
 "vrf": {
    "publicKey": "C074A57A0EDF633414DDD764C6771926E91596481E0C2CAD4D9C3EFAAA432BCE",
   "privateKey": "C07D9A63B8DD8B0E639AAAE6059D7FA6C554082677926B7CACF0514E3940692C",
   "address": "MBLYBGODVGLT3HED6EXAQAXJE4CHHVRWGIAS45Y"
 },
 "voting": {
   "publicKey": "F6571CBC420A4EBA09E027AA53E5DD9486642911CDC11E0D3A6D1B2E4BC228D1".
   "privateKey": "FD5744779348F77F6EA6288232D0C8944E2F3C9E24D2E0FB1E93A8C4F9DD9BA5",
   "address": "MD2M6SDIE6406ZWF2IJ7R4R5RDKOT2FNJDUIY0Q"
 }
},
"test1Account": {
 "publicKey": "CB51613497A40D9A256B17932579BC64D5037A04B29737B944965C1ADADD6E04",
 "privateKey": "8D5969EF1796F5F90256C92B5017396E40786ED87995169D4E26C9E5E01D7F8C",
  "address": "MAS36UGDCOGG6GYCBDPX3ROISABSNPZ6JQXMJSA"
},
"test2Account": {
 "publicKey": "5CC14799D5B2643914C8E574C8D073A7EE9AE2A405F1339A53612B566498AB1D",
  "privateKey": "FDE625C1D53AF04533FEB06A3556679FC02C4C6246952D3A534EB3E19CF83C56",
  "address": "MC5AH4UGBPPHNCMPTVNSY6LRDPIMEDODS20373A"
}
```

At this point, test1Account and test2Account are checked and do not exist. This is because there is no exchange of this address on the blockchain, so its existence cannot be confirmed.

```
$ catapult@catapult:~$ mijin-catapult-tools account info -r mijin.json -t test1
2023-01-17T06:36:26.600Z [info] : mijin URL: http://localhost:3000
2023-01-17T06:36:26.601Z [info] : Network: 96
2023-01-17T06:36:26.601Z [info] : Mosaic Currency Id: 268CF9B2D33FBD22
2023-01-17T06:36:26.601Z [info] : Mosaic Harvest Id: 4C39D26C386E3182
2023-01-17T06:36:26.601Z [info] : Start Account Info
2023-01-17T06:36:26.620Z [error] : Address Not Found
```

```
$ mijin-catapult-tools account info -r mijin.json -t test2
2023-01-17T06:36:43.387Z [info] : mijin URL: http://localhost:3000
2023-01-17T06:36:43.387Z [info] : Network: 96
```

```
2023-01-17T06:36:43.387Z [info] : Mosaic Currency Id: 268CF9B2D33FBD22
2023-01-17T06:36:43.387Z [info] : Mosaic Harvest Id: 4C39D26C386E3182
2023-01-17T06:36:43.387Z [info] : Start Account Info
2023-01-17T06:36:43.405Z [error] : Address Not Found
```

About Fees and Commissions

Fees are charged by transactions issued in the following items and must be paid in the base currency (cat.currency).

- transaction fee
- Mosaic Rental Fee
- Namespace Rental Fees
- · Locked guarantee deposit

For mijin offered in the marketplace, the commission mode is set to none as standard. With no fees, there is no need to have a base currency balance in the account, so there is nothing to be aware of, but you will need to set the fee setting to **0** each time in the sdk, for example. If you created a mijin with fees, refer to the (Extra)How to move the base currency when in commissionable mode field and **test1Account** to send the base currency to the account in **test1Account** ".

3.2.1.4 Create and transfer Mosaic

First, let's create and transfer the basic Mosaic.

Create Mosaic

Issue one issue of Mosaic(Token) with the test1 account as the owner.

```
$ mijin-catapult-tools transaction mosaic create -r mijin.json -o test1 -s 1 -d 0
2023-01-17T06:42:51.942Z [info] : mijin URL: http://localhost:3000
2023-01-17T06:42:51.942Z [info] : Network: 96
2023-01-17T06:42:51.942Z [info] : Create Mosaic...
2023-01-17T06:42:51.955Z [info] : Mosaic Owener Account:
MAS36UGDCOGG6GYCBDPX3ROISABSNPZ6JQXMJSA
2023-01-17T06:42:51.955Z [info] : MosaicId: 3D86C9FE5D52DE6F
2023-01-17T06:42:51.955Z [info] : Mosaic Flags: supplymutable:true, transferable:true,
restrictable:true, revokable:false
2023-01-17T06:42:51.955Z [info] : Mosaic Supply: divisibility:0, supply:1
2023-01-17T06:42:51.964Z [info] : Transaction Fee: 0
2023-01-17T06:42:51.964Z [info] : Mosaic Rental Fee: 0
2023-01-17T06:42:51.964Z [info] : Start Aggregate Transaction...
2023-01-17T06:43:00.967Z [info] : End Aggregate Transaction
2023-01-17T06:43:00.967Z [info] : http://localhost:3000/transactionStatus/
→39BBE7E083460C3B85EB7D5FA2FB486F9786CA3FF1E0F976214F5753E527383A
2023-01-17T06:43:00.967Z [info] : http://localhost:3000/transactions/confirmed/
→ 39BBE7E083460C3B85EB7D5FA2FB486F9786CA3FF1E0F976214F5753E527383A
```

Checking the information on account A, we can see that it has only 1 MosaicId 3D86C9FE5D52DE6F.

```
$ mijin-catapult-tools account info -r mijin.json -t test1
2023-01-17T06:43:43.349Z [info] : mijin URL: http://localhost:3000
2023-01-17T06:43:43.350Z [info] : Network: 96
2023-01-17T06:43:43.350Z [info] : Mosaic Currency Id: 268CF9B2D33FBD22
2023-01-17T06:43:43.350Z [info] : Mosaic Harvest Id: 4C39D26C386E3182
2023-01-17T06:43:43.350Z [info] : Start Account Info
2023-01-17T06:43:43.365Z [info] : test1 Account: {
  "publicKey": "CB51613497A40D9A256B17932579BC64D5037A04B29737B944965C1ADADD6E04",
  "address": "MAS36UGDCOGG6GYCBDPX3ROISABSNPZ6JQXMJSA",
  "mosaics": [
    {
      "id": "3D86C9FE5D52DE6F",
      "amount": "1",
      "currency": false,
      "harvest": false
    }
  ],
  "keylink": {
    "vrf": {
      "publicKey": ""
    },
    "voting": {
      "publicKey": "",
      "startEpoch": "",
      "endEpoch": ""
    }
  }
```

Transfer Mosaic

Transfer the Mosaic **3D86C9FE5D52DE6F** you just created from **test1** to **test2**.

```
$ mijin-catapult-tools transaction transfer -r mijin.json -f test1 -d test2 -m
3D86C9FE5D52DE6F -a 1
2023-01-17T06:44:46.983Z [info] : mijin URL: http://localhost:3000
2023-01-17T06:44:46.984Z [info] : Network: 96
2023-01-17T06:44:46.984Z [info] : Start Transfer Account...
2023-01-17T06:44:46.996Z [info] : From Account Address:
MAS36UGDCOGG6GYCBDPX3ROISABSNPZ6JQXMJSA
2023-01-17T06:44:46.996Z [info] : Dest Account Address:
MC5AH4UGBPPHNCMPTVNSY6LRDPIMEDODS20373A
2023-01-17T06:44:47.005Z [info] : Start Transfer Transaction...
2023-01-17T06:44:52.197Z [info] : End Transfer Transaction
2023-01-17T06:44:52.197Z [info] : http://localhost:3000/transactionStatus/
454DFDC48F00852A3DE355D7D2AD4B581D718D999BA177E1BB392AECD1656C6A
2023-01-17T06:44:52.197Z [info] : http://localhost:3000/transactions/confirmed/
454DFDC48F00852A3DE355D7D2AD4B581D718D999BA177E1BB392AECD1656C6A
```

Check the status of the test1 account. The test2 account does not have Mosaic **3D86C9FE5D52DE6F**.

```
$ mijin-catapult-tools account info -r mijin.json -t test1
2023-01-17T06:45:51.931Z [info] : mijin URL: http://localhost:3000
2023-01-17T06:45:51.931Z [info] : Network: 96
2023-01-17T06:45:51.931Z [info] : Mosaic Currency Id: 268CF9B2D33FBD22
2023-01-17T06:45:51.931Z [info] : Mosaic Harvest Id: 4C39D26C386E3182
2023-01-17T06:45:51.931Z [info] : Start Account Info
2023-01-17T06:45:51.946Z [info] : test1 Account: {
  "publicKey": "CB51613497A40D9A256B17932579BC64D5037A04B29737B944965C1ADADD6E04",
  "address": "MAS36UGDCOGG6GYCBDPX3ROISABSNPZ6JQXMJSA",
  "mosaics": [],
  "keylink": {
    "vrf": {
      "publicKey": ""
    },
    "voting": {
      "publicKey": "",
      "startEpoch": "",
      "endEpoch": ""
  }
```

Then check the status of the **test2 account**.

Confirm that the test2 account owns Mosaic 3D86C9FE5D52DE6F.

```
$ mijin-catapult-tools account info -r mijin.json -t test2
2023-01-17T06:46:41.737Z [info] : mijin URL: http://localhost:3000
2023-01-17T06:46:41.738Z [info] : Network: 96
2023-01-17T06:46:41.738Z [info] : Mosaic Currency Id: 268CF9B2D33FBD22
2023-01-17T06:46:41.738Z [info] : Mosaic Harvest Id: 4C39D26C386E3182
2023-01-17T06:46:41.738Z [info] : Start Account Info
2023-01-17T06:46:41.754Z [info] : test1 Account: {
  "address": "MC5AH4UGBPPHNCMPTVNSY6LRDPIMEDODS20373A",
  "mosaics": [
   {
     "id": "3D86C9FE5D52DE6F",
     "amount": "1",
     "currency": false,
     "harvest": false
   }
  ],
  "keylink": {
   "vrf": {
     "publicKey": ""
   },
    "voting": {
     "publicKey": "",
     "startEpoch": "",
     "endEpoch": ""
    }
  }
```

3.2.1.5 (Extra)How to move the base currency when in commissionable mode

If you create a mijin in commissioned mode, all transaction transmissions, etc. will be charged a fee from the base currency.

For this reason, we will explain the procedure for submitting the base currency balance when creating an account.

Register for a key currency holding account

Note:

If you use | mijin | in AWS Marketplace, select the Outouts tab in the AWS Cloudformation Stack. Please note the URL of the Key 'mijinLBEndpint'or 'mijinbEndpoint'.

Next, click on the URL for the Value of the Key 'HarvestAddress'.

Please note the value of the private_key in the very first Vaule in the api. (In this case, the value begins with 055E)

For more information, see Deploy mijin on an existing VPC or Create a new VPC and deploy mijin for details.

Import the above private_key in symbol-cli.If you already have a mijin.json file, only balanceAccount can be appended.

```
$ mijin-catapult-tools account generate -r mijin.json -w mijin.json -s -p
90EEBCB77A767F8F5CCCE9D0F89A60CB2D7FCD5FD8F469E2F8BDFC0CDD8B8A2F
2023-01-17T06:55:52.167Z [info] : mijin URL: http://localhost:3000
2023-01-17T06:55:52.167Z [info] : Network: 96
2023-01-17T06:55:52.167Z [info] : Mosaic Currency Id: 268CF9B2D33FBD22
2023-01-17T06:55:52.167Z [info] : Mosaic Harvest Id: 4C39D26C386E3182
2023-01-17T06:55:52.167Z [info] : Start Account Generate...
2023-01-17T06:55:52.229Z [info] : Write Config File: mijin.json
2023-01-17T06:55:52.233Z [info] : New Account: {
  "url": "http://localhost:3000",
  "workAccount": {
    "publicKey": "425F06A8870381A00BD83E2D1083BB690F9FCB815F0919DFFA1A53A68E144D06",
    "privateKey": "9E9C660164AB344030DF5E77539952D9F5B380311C978369BA08923F577D8DAB",
    "address": "MC5VTRZ07IGJUG2VPQXBD4GD04A74YLFUCVZZGI"
  },
  "balanceAccount": {
    "publicKey": "4FAAC9BF9881893CB31BC2065E8A8D0B12364423E2A08DAF4F77E1FEF5D5B2E8",
    "privateKey": "90EEBCB77A767F8F5CCCE9D0F89A60CB2D7FCD5FD8F469E2F8BDFC0CDD8B8A2F",
    "address": "MCPYNELDE5QS63QBRZ2L7OLNZ63YPQJSOCEWXQI"
  },
  "mainAccount": {
    "publicKey": "F2985009341A526B17E954EB6EA3EC77E1A0B33AE31EB29F86A69D9BB283AF67",
    "privateKey": "FF9A552ED35D930378F1E6B349A677771F19A06BCA0C4D5DCA621F354F5C6956",
    "address": "MCV66SABR6MBWT2I56YI3ULCPYWREJFX5DHHGDQ"
  },
  "keylink": {
    "vrf": {
      "publicKey": "C074A57A0EDF633414DDD764C6771926E91596481E0C2CAD4D9C3EFAAA432BCE",
      "privateKey": "9E9C660164AB344030DF5E77539952D9F5B380311C978369BA08923F577D8DAB",
      "address": "MBLYBGODVGLT3HED6EXAQAXJE4CHHVRWGIAS45Y"
    },
```

```
"voting": {
    "publicKey": "F6571CBC420A4EBA09E027AA53E5DD9486642911CDC11E0D3A6D1B2E4BC228D1",
    "privateKey": "FD5744779348F77F6EA6288232D0C8944E2F3C9E24D2E0FB1E93A8C4F9DD9BA5",
    "address": "MD2M6SDIE6406ZWF2IJ7R4R5RDKOT2FNJDUIY0Q"
 }
},
"test1Account": {
 "publicKey": "CB51613497A40D9A256B17932579BC64D5037A04B29737B944965C1ADADD6E04",
 "privateKey": "8D5969EF1796F5F90256C92B5017396E40786ED87995169D4E26C9E5E01D7F8C",
 "address": "MAS36UGDCOGG6GYCBDPX3ROISABSNPZ6JQXMJSA"
},
"test2Account": {
 "publicKey": "5CC14799D5B2643914C8E574C8D073A7EE9AE2A405F1339A53612B566498AB1D",
 "privateKey": "FDE625C1D53AF04533FEB06A3556679FC02C4C6246952D3A534EB3E19CF83C56",
 "address": "MC5AH4UGBPPHNCMPTVNSY6LRDPIMEDODS20373A"
1
```

You can now import into the balanceAccount.

Verify account information.

This account has two Mosaics initially.

Balance Information 268CF9B2D33FBD22 is the base currency (cat.currency) and 4C39D26C386E3182 is Mosaic for Harvest validity.

Warning: This ID will be a different value for each mijin created, and the base currency will be the ID displayed as "currency": true

```
$ mijin-catapult-tools account info -r mijin.json -t balance
2023-01-17T06:56:51.299Z [info] : mijin URL: http://localhost:3000
2023-01-17T06:56:51.299Z [info] : Network: 96
2023-01-17T06:56:51.299Z [info] : Mosaic Currency Id: 268CF9B2D33FBD22
2023-01-17T06:56:51.299Z [info] : Mosaic Harvest Id: 4C39D26C386E3182
2023-01-17T06:56:51.299Z [info] : Start Account Info
2023-01-17T06:56:51.315Z [info] : balance Account: {
  "publicKey": "4FAAC9BF9881893CB31BC2065E8A8D0B12364423E2A08DAF4F77E1FEF5D5B2E8",
  "address": "MCPYNELDE5QS63QBRZ2L70LNZ63YPQJSOCEWXQI",
  "mosaics": [
    {
      "id": "268CF9B2D33FBD22",
      "amount": "8998977498000000",
      "currency": true,
      "harvest": false
    },
    {
      "id": "4C39D26C386E3182",
      "amount": "15000000",
      "currency": false,
      "harvest": true
    }
  ],
```

```
"keylink": {
    "vrf": {
        "publicKey": "2A88BA2689D584B03A3D4B829347F0A8B63AF55A8E9F176F1D2327F9E87E22D8"
    },
    "voting": {
        "publicKey": "22BB9DCA05D483E4D4DDE764E8742E741ADA676F461D5F3E6663840C5290320F",
        "startEpoch": 1,
        "endEpoch": 26280
    }
}
```

3.2.2 mijin Catapult(v.2) version up

This chapter describes how to do a minor upgrade of the mijin Catapult(v.2) node. mijin Catapult(v.2) programs can be upgraded by updating the docker container version and, if necessary, the Config file.

Version upgrade announcements are sent out for paid support customers.

Warning:

Synchronization may fail if there is a major version upgrade or version differences. As of 2022/9/20 There will be no version upgrade.

3.2.2.1 Step.1

Remote login to the node. If you want to log in to AWS MarketPlace's mijin Catapult(v.2), you can use mijin Catapult(v.2) EC2 instance login how to.

3.2.2.2 Step.2

Switch to the 'catapult'user running mijin.

```
$ sudo su - catapult
catapult@api1:~$
```

3.2.2.3 Step.3

Go to the directory where the mijin startup files are located. Note that the directories are different for API and PEER nodes.

Node	Directories
API/Dual	mijin-catapult-package/package/ api /catapult/
PEER	mijin-catapult-package/package/ peer /catapult/

For API nodes, move as follows

```
catapult@api1:~$ cd mijin-catapult-package/package/api/catapult/
catapult@api1:~/mijin-catapult-package/package/api/catapult$
```

3.2.2.4 Step.4

Mijin launches multiple containers by docker. Check multiple containers.

For API nodes

Four containers are running. Make sure that all States are Up. If there is something wrong, the state will be Exit instead of Up and you will be in a down state.

catapult@api1:~/mijin-catapult-package/package/api/catapult\$ docker-compose ps			
Name	Command	State	Ports
↔			
catapult_api-node-broker_1	bash -c /bin/bash /scripts	Up	
catapult_api-node_1 ∽7900/tcp	bash -c perl /scripts/wait	Up	0.0.0.0:7900->
catapult_db_1	docker-entrypoint.sh bash	Up	27017/tcp
catapult_rest-gateway_1 ⇔3000/tcp	docker-entrypoint.sh ash	Up	0.0.0.0:3000->

For PEER node

One container is activated. Make sure that all States are Up. If there is some abnormality, it will be Exit instead of Up and will be in a down state.

catapult@peer1:~/mijin-catapult-package/package/peer/catapult\$ docker-compose ps				
Name Command		State	Ports	
catapult_peer-node_1	bash -c /bin/bash /scripts	Up	0.0.0.0:7900->7900/tcp	

3.2.2.5 Step.5

Stop all mijin containers using docker-compose.

All containers stopped

```
catapult@api1:~/mijin-catapult-package/package/api/catapult$ docker-compose down
Stopping catapult_rest-gateway_1 ... done
Stopping catapult_db_1 ... done
Removing catapult_api-node-broker_1 ... done
Removing catapult_rest-gateway_1 ... done
Removing catapult_api-node_1 ... done
Removing catapult_db_1 ... done
Removing catapult_db_1 ... done
Removing catapult_db_1 ... done
Removing catapult_db_1 ... done
```

After stopping, check the lock file and delete it if any.

If a lock file exists after the stop as shown above, it is considered to have stopped abnormally. Therefore, delete the lock file.

\$ rm -rf /mnt/mijin/blocks/data/broker.lock /mnt/mijin/blocks/data/server.lock

3.2.2.6 Step.6

Modify the docker-compose file. As an example, we will replace **1.0.0.0** with **1.0.0.1**.

Note:

Config file may need to be modified.

The procedure will be made available at the time of the upgrade announcement. (No version as of 9/20/20/2022)

3.2.2.7 Step.7

```
catapult@api1:~/mijin-catapult-package/package/api/catapult$ docker-compose up -d
Creating network "catapult_default" with the default driver
Creating catapult_db_1 ... done
Creating catapult_rest-gateway_1 ... done
Creating catapult_api-node-broker_1 ... done
Creating catapult_api-node_1 ... done
```

After startup, execute the items in Step.4 and make sure all containers are Up.

3.2.3 [Archive] mijin account creation (>=1.0.0.0)

This chapter describes the account operations that must be performed in order to operate mijin.

Warning:

Symbol-cli has been archived, so symbol-cli may not be available. From 1.0.3.4 and onwards, please refer to ./aws_tips_new_move_currency.

Note:

mijin Catapult(v.2) to operate, you create an account and use that account to submit transactions. Also note that you must have a base currency (cat.currency) balance in your account if you are in commissionable mode as specified during deployment.

3.2.3.1 Installation of symbol-cli

Install symbol-cli from npm.

```
$ sudo npm i -g symbol-cli@1.0.0
/usr/local/bin/symbol-cli -> /usr/local/lib/node_modules/symbol-cli/bin/symbol-cli
+ symbol-cli@1.0.0
updated 1 package in 8.724s
```

3.2.3.2 Create an account

First, let's create two accounts to be used for testing.

item	Description	value
Select the network type	Specify the network.	MIJIN/MIJIN_TEST
	CatapultNetwork value specified at build time	
Do you want to save the account?	Save this account.	yes
Select an import type	Specify the import method for saving again.	PrivateKey
Enter the Symbol node URL.	Specify the mijinLBENdpoint or miji- nEndpoint URL on the Outouts tab in the Cloudformation Stack.	<http: xxxxxx:300=""></http:>
Enter a profile name	Specify a profile name to invoke the ac- count.	optional
Enter your wallet password	Specify the password for your account	optional

Create the first account (Profile mijin-a)

```
$ symbol-cli account generate
? Select the network type: > - Use arrow-keys. Return to submit.
✓ Select the network type: > MIJIN
\checkmark Do you want to save the account? ... yes
✓ Select an import type: > PrivateKey
✓ Enter the Symbol node URL. (Example: http://localhost:3000): … http://
↔xxxxxxxxxxxxxxxxx.elb.ap-northeast-1.amazonaws.com:3000
✓ Enter a profile name: … mijin-a
\checkmark Enter your wallet password: … *******
\checkmark Do you want to set the account as the default profile? … yes
Account
Property
                  Value
  Address
                  MA36BR-7DCFZT-65BQZP-TM5QND-EZKSB7-HNE4DU-6TI
 Public Key
                707902962A0A2E32226243D1E7B98D2DD40261E9D3649543E7C28A0F024D4A38
```

. <u> </u>	
Private Key	2515EDCAAA3985F30D6E758ED139823290DAB11034BF4113849FF5CB9355B9C9
Password	Test1234
	(continuos on port p

SUCCESS Stored mijin-a profile

At this point, a check of the mijin-a account shows that it does not exist. This is because there is no exchange of this address on the blockchain, so its existence cannot be confirmed.

Create second account (Profile mijin-b)

\$ symbol-cli account generate

\$ Select the network type: > MIJIN
\$ Do you want to save the account? ... yes
\$ Select an import type: > PrivateKey
\$ Enter the Symbol node URL. (Example: http://localhost:3000): ... http://
\$ xxxxxxxxxxxxxx.elb.ap-northeast-1.amazonaws.com:3000
\$ Enter a profile name: ... mijin-b
\$ Enter your wallet password: ... *******
\$ Do you want to set the account as the default profile? ... no
\$ Select an import type: > MIJIN
\$ MIJIN
\$ Do you want to set the account as the default profile? ... no
\$ Select an import type: > MIJIN
\$ Do you want to set the account as the default profile? ... no
\$ Select an import type: > MIJIN
\$ Do you want to set the account as the default profile? ... no
\$ Select an import type: > MIJIN
\$ Do you want to set the account as the default profile? ... no
\$ Select an import type: > MIJIN
\$ Do you want to set the account as the default profile? ... no
\$ Select an import type: > MIJIN
\$ Select an import type: > MIJIN
\$ Do you want to set the account as the default profile? ... no
\$ Select an import type: > MIJIN
\$ Select

Account

 Property	Value		
Address	MCLO63-LBWG6V-PLJD40-MADZ37-W6QXQE-DPC3H3-EGQ		
Public Key	2D2AC0FF30FABEFC12CB3FBB2323F8CD079ED1055FAAF2581CA29697130292FA		
Private Key	654065E33D00446F1FAAF2CF7D72CC287BDD91E55E9489AEC42769EDDB7A9759		
Password	Test1234		
SUCCESS Stored mijin-b profile			

Same as the first, no mijin-b account exists.

```
$ symbol-cli account info --profile mijin-b

* Processing(node:53) [DEP0091] DeprecationWarning: crypto.DEFAULT_ENCODING is
deprecated.
(node:53) [DEP0010] DeprecationWarning: crypto.createCredentials is deprecated. Use
tls.createSecureContext instead.
(node:53) [DEP0011] DeprecationWarning: crypto.Credentials is deprecated. Use tls.
->SecureContext instead.
ERR {"statusCode":404, "statusMessage":"Not Found", "body":"{\"code\":\"ResourceNotFound\
->", \"message\":\"no resource exists with id 'MCLO63LBWG6VPLJD4OMADZ37W6QXQEDPC3H3EGQ'\
->"}"}
TIP The account has to receive at least one transaction to be recorded on the network
```

About Fees and Commissions

Fees are charged by transactions issued in the following items and must be paid in the base currency (cat.currency).

- transaction fee
- Mosaic Rental Fee
- Namespace Rental Fees
- Locked guarantee deposit

For mijin offered in the marketplace, the commission mode is set to none as standard. Without commissions, there is no need to have a base currency balance in your account, so there is nothing to be aware of, but you will need to set the commission setting to 0 in symbol-cli or sdk each time.

If you have created a mijin with commissions, please refer to the section 'How to move the base currency in the mode with commissions' and send the base currency to Profile mijin-a.

3.2.3.3 Create and transfer Mosaic

First, let's create and transfer the basic Mosaic.

Create Mosaic

Issue 1amount of Mosaic(Token) in profile mijin-a account.

item	Description	value
Enter your wallet password	Please specify the password you have set	optional
Do you want a non-expiring mosaic	Specify whether Mosaic is to expire or indefinitely; Yes to indefinitely; No to in- definitely; No to indefinitely.	yes
Enter the mosaic divisibility	Specifies the divisibility of Mosaic, 0 to none.	0
Do you want this mosaic to have a mu- table supply?	Specifies whether the maximum num- ber of Mosaic issues can be changed. None.	no
Do you want this mosaic to be transfer- able?	Specifies whether Mosaic forwarding is allowed.	yes
Do you want this mosaic to be re- strictable?	Specifies whether Mosaic restrictions are allowed.	yes
Amount of mosaics units to create	Specify the number of Mosaic issues. In this case, 1 is issued.	1
Enter the maximum fee (absolute amount)	Specifies the transaction fee. This changes with the commission mode. With commission 20000 or so (0.2cat.currency) No commission 0	0
Select the transaction announce mode	Specifies how transactions are an- nounced.	normal

Listing 1: Symbol CLI によるモザイク定義

```
$ symbol-cli transaction mosaic --profile mijin-a
1
2
  ✓ Enter your wallet password: … *******
3
   ✓ Do you want a non-expiring mosaic? … yes
4
   ✓ Enter the mosaic divisibility: … 0
5
   ✓ Do you want this mosaic to have a mutable supply? … no
6
   ✓ Do you want this mosaic to be transferable? … yes
7
   ✓ Do you want this mosaic to be restrictable? … yes
8
   ✓ Amount of mosaics units to create: … 1
9
   ✓ Enter the maximum fee (absolute amount): ··· 0
10
   ✓ Select the transaction announce mode: > normal
11
   ✓ Do you want to announce this transaction? … yes
12
13
  SUCCESS Transaction announced correctly
14
15
  TIP To check if the network confirms or rejects the transaction, run the command
16
   ↔'symbol-cli transaction status'
```

When I check the mijin-a account again, I can see that it has only one MosaicId 3BF3AF8B22CB53D8 in the Balance Information.

```
$ symbol-cli account info --profile mijin-a
" Processing(node:7795) [DEP0091] DeprecationWarning: crypto.DEFAULT_ENCODING is
deprecated.
(node:7795) [DEP0010] DeprecationWarning: crypto.createCredentials is deprecated. Use
tls.createSecureContext instead.
(node:7795) [DEP0011] DeprecationWarning: crypto.Credentials is deprecated. Use tls.
```

→SecureContext inst : Processing Account Information	cead.			
Property	Value			
Address	MA36BR-7DCFZT-65BQZP-TM5QND-EZKSB7-HNE4DU-6TI			
Address Height	959			
Public Key	 707902962A0A2E32	226243D1E7B98D2DD4	0261E9D3649543E7C28A	.0F024D4A38
Public Key Height	959			
Importance	0			
Importance Height	0			
Balance Information				
Mosaic Id	Relative Amount	Absolute Amount	Expiration Height	
3BF3AF8B22CB53D8	1	1	Never	1

Transfer Mosaic

Transfer the Mosaic 3BF3AF8B22CB53D8 you just created from Profile mijin-a to mijin-b.

item	value
Mosaic	3BF3AF8B22CB53D8
transfer amount	1
Destination address (Profile mijin-b address)	MCLO63-LBWG6V-PLJD4O-MADZ37-W6QXQE-DPC3H3-EGQ

item	Description	value
Enter your wallet password	Please specify the password you have set	optional
Mosaics to transfer in the format (mosai- cId(hex) @aliasName)::absoluteAmo	転送するモザイク ID(またはエイリアス)にコ ロンを二つ追加した後、転送 amount を指定しま un t 。	3BF3AF8B22CB53D8::1
Enter the recipient address or @alias	Specify the forwarding address	MCLO63-LBWG6V-PLJD4O- MADZ37-W6QXQE-DPC3H3-EGQ
Enter a message	A message can be added to the transfer transac- tion	optional
Enter the maximum fee (absolute amount)	トランザクション手数料を指定します(モードに より異なります)。 - 手数料あり: 約 ^{、、} 20000 ^{、、} (= 0.2cat.currency) - 手数料なし: 0	0
Select the transaction announce mode	Specifies how transactions are announced.	normal

\$ symbol-cli transaction transfer --profile mijin-a ? Enter your wallet password: > (node:97) [DEP0091] DeprecationWarning: crypto.DEFAULT_ →ENCODING is deprecated. (node:97) [DEP0010] DeprecationWarning: crypto.createCredentials is deprecated. Use tls.createSecureContext instead. (node:97) [DEP0011] DeprecationWarning: crypto.Credentials is deprecated. Use tls. →SecureContext instead. ✓ Enter your wallet password: … ******* ✓ Mosaics to transfer in the format (mosaicId(hex)|@aliasName)::absoluteAmount, (Ex: sending 1 symbol.xym, @symbol.xym::1000000). Add multiple mosaics separated by commas: ··· 3BF3AF8B22CB53D8::1 ✓ Enter the recipient address or @alias: … MCLO63-LBWG6V-PLJD4O-MADZ37-W6QXQE-DPC3H3-→EGO ✓ Enter a message: … ✓ Enter the maximum fee (absolute amount): ··· 0 ✓ Select the transaction announce mode: > normal TRANSFER 0 Max fee: Network type: MIJIN Deadline: 2021-05-17 16:40:45.212 MCL063-LBWG6V-PLJD40-MADZ37-W6QXQE-DPC3H3-EGQ Recipient: Message: N/A Mosaic (1/1): 1 3BF3AF8B22CB53D8 Signature details B00000000000000639B3F893989DC69FA3DF8D9BA294FD787F7644D68918FA8 Payload: F5E6A5162FE57CD34B03E944AA48F4B22790A50ECEA4A130EBB89299BDB173A4 556BBAFF8092A20B707902962A0A2E32226243D1E7B98D2DD40261E9D3649543 E7C28A0F024D4A38000000001605441000000000000000009C1F80300E000000 6096EF6D61B1BD57AD23E39801E77FB7A178106F16CFB21A000001000000000 D853CB228BAFF33B010000000000000 Hash: 0CAB966B0E7090AA19AE4D4F2BD2334A7F7466E5661107A15F8831EA48A5CE88 Signer: 707902962A0A2E32226243D1E7B98D2DD40261E9D3649543E7C28A0F024D4A38 ✓ Do you want to announce this transaction? … yes SUCCESS Transaction announced correctly TIP To check if the network confirms or rejects the transaction, run the command →'symbol-cli transaction status'

Check the status of the profile **mijin-a**.

We can verify that it does not have Mosaic 3BF3AF8B22CB53D8.

symbol-cli account infoprofile mijin-a			
" Processing(node:108) [DEP0091] DeprecationWarning: crypto.DEFAULT_ENCODING is			
deprecated.			
(node:108) [DEP0010]	DeprecationWarning: crypto.createCredentials is deprecated. Use		
tls.createSecureConte	ext instead.		
(node:108) [DEP0011]	DeprecationWarning: crypto.Credentials is deprecated. Use tls.		
⇔SecureContext instead.			
: Processing			
Account Information			
Property	Value		
Address	MA36BR-7DCFZT-65BQZP-TM5QND-EZKSB7-HNE4DU-6TI		
Address Height	959		
Public Key	707902962A0A2E32226243D1E7B98D2DD40261E9D3649543E7C28A0F024D4A38		
Public Key Height	959		
Importance	0		
Importance Height	0		
L			

Then check the status of Profile **mijin-b**. We can verify that it has Mosaic **3BF3AF8B22CB53D8**.

```
symbol-cli account info --profile mijin-b
" Processing(node:119) [DEP0091] DeprecationWarning: crypto.DEFAULT_ENCODING is
deprecated.
(node:119) [DEP0010] DeprecationWarning: crypto.createCredentials is deprecated. Use
tls.createSecureContext instead.
(node:119) [DEP0011] DeprecationWarning: crypto.Credentials is deprecated. Use tls.
\hookrightarrowSecureContext instead.
" Processing
Account Information
 Property
                    Value
 Address
                    MCLO63-LBWG6V-PLJD40-MADZ37-W6QXQE-DPC3H3-EGQ
 Address Height
                    17912
                  Public Key
 Public Key Height | 0
 Importance
                    0
 Importance Height
                    0
Balance Information
                                                                  (continues on next page)
```

3BF3AF8B22CB53D8 1 1 Never

3.2.3.4 (Extra)How to move the base currency when in commissionable mode

If you create a mijin in commissioned mode, all transaction transmissions, etc. will be charged a fee from the base currency.

For this reason, we will explain the procedure for submitting the base currency balance when creating an account.

Register for a key currency holding account

Note:

If you use | mijin | in AWS Marketplace, select the Outouts tab in the AWS Cloudformation Stack. Please note the URL of the Key 'mijinLBEndpint'or 'mijinbEndpoint'.

Next, click on the URL for the Value of the Key 'HarvestAddress'.

Please note the value of the private_key in the very first Vaule in the api. (In this case, the value begins with 055E)

For more information, see Deploy mijin on an existing VPC or Create a new VPC and deploy mijin for details.

Import the above private_key in symbol-cli.

item	Input value
Select the network type	
	Specify the network.
	構築時に指定した CatapultNetwork の値
	MIJIN または MIJIN_TEST
Enter the Symbol node URL	
	控えていた mijinEndpoint もしくは
	ロードバランサーが有効であれば mijinLBEndpoint の URL を入力
Enter a profile name	Enter any profile name
Enter your wallet password	Enter any password
Do you want to set the account as the default profile	DefaultProfile にするかどうか、ここでは Yes を選択
Select an import type	PrivateKey
Enter your account private key	控えていた private_key を入力

\$ symbol-cli profile import

```
✓ Select the network type: > MIJIN
✓ Enter the Symbol node URL. (Example: http://localhost:3000): … http://MIJIN-
→CATAPULT-E1-nlb-rest-XXXXXXXX.elb.ap-northeast-1.amazonaws.com:3000
```

```
✓ Enter a profile name: … mijin-harvest
✓ Enter your wallet password: … *******
✓ Do you want to set the account as the default profile? … no
✓ Select an import type: > PrivateKey
✓ Enter your account private key: …
```

Account

Property	Value
Address	MAQUY5-KOJVPE-DDCTD6-3SZYHM-EQOFF4-HTUYZU-3WQ
Public Key	I 29800CB9DF988622AD4B940F578569321F4B7F08127C478A0C0C28ACC61B8A2C I
Private Key	2EC8FF52B5B922E0F509FBEE6CE3C4B3512E9347DB800A76A6EF993C43C0D5BC
Password	Test1234

SUCCESS Stored mijin-harvest profile

Now you are ready to import.

Verify account information.

This account has two Mosaics initially.

Balance Information 04A125F887094D2A is the base currency (cat.currency) and 49DB43B9FA374EF2 is Mosaic for Harvest validity.

```
Warning: This ID will be different for each creation, and the base currency will be the ID with the largest Amount.
```

```
$ symbol-cli account info --profile mijin-harvest
" Processing(node:141) [DEP0091] DeprecationWarning: crypto.DEFAULT_ENCODING is
deprecated.
(node:141) [DEP0010] DeprecationWarning: crypto.createCredentials is deprecated. Use
tls.createSecureContext instead.
(node:141) [DEP0011] DeprecationWarning: crypto.Credentials is deprecated. Use tls.
→SecureContext instead.
: Processing
Account Information
Property
                     Value
 Address
                     MAQUY5-KOJVPE-DDCTD6-3SZYHM-EQOFF4-HTUYZU-3WQ
 Address Height
                      1
 Public Key
                     29800CB9DF988622AD4B940F578569321F4B7F08127C478A0C0C28ACC61B8A2C
```

lute Amount Expiration He	eight
799999600000 Never	
000 Never	
-) -)	01ute Amount Expiration He 07999996000000 Never 0000 Never

Confirmation of base currency

item	Description	value
Enter the mosaic id in hexadecimal for- mat	Information on the target mosaic can be obtained by specifying the mosaic ID.	In the example here 04A125F887094D2A

Divisibility can be checked at Divisibility. In the following, divisibility is 6.

```
symbol-cli mosaic info
? Enter the mosaic id in hexadecimal format: > (node:163) [DEP0091] DeprecationWarning:
crypto.DEFAULT_ENCODING is deprecated.
(node:163) [DEP0010] DeprecationWarning: crypto.createCredentials is deprecated. Use
tls.createSecureContext instead.
(node:163) [DEP0011] DeprecationWarning: crypto.Credentials is deprecated. Use tls.
⇔SecureContext instead.
✓ Enter the mosaic id in hexadecimal format: … 04A125F887094D2A
Mosaic Information
 Property
                      Value
 Record Id
                      609DEB554D4B851AA429AE2C
 Mosaic Id
                      04A125F887094D2A
 Divisibility
                      6
 Transferable
                      true
  Supply Mutable
                      false
  Height
                      1
```

Expiration	Never
Owner	MAO5AR-GSMLGK-ZCDV35-IJWDVL-JFOCZT-XHM3KJ-RHA
Supply (Absolute)	8998999998000000
Supply (Relative)	8,998,999,998

Send the base currency

Try to send the base currency 1000cat.currency to the registered account (Profile mijin-a).

item	value
Mosaic	cat.currency
transfer amount	100000000(1000.000000 since divisibility is 6)
Forwarding address (Profile mijin-a)	MA36BR-7DCFZT-65BQZP-TM5QND-EZKSB7-HNE4DU-6TI

item	Description	value
Enter your wallet password	Please specify the password you have set	optional
Mosaics to transfer in the format (mosai- cld(hex) @aliasName)::absoluteAmount	After adding two colons to the mosaic ID (or alias) to be transferred, specify the transfer AMOUNT.	@cat.currency::1000000000
Enter the recipient address or @alias	Specify the forwarding address	MA36BR-7DCFZT-65BQZP-TM5QND- EZKSB7-HNE4DU-6TI
Enter a message	A message can be added to the transfer transaction	optional
Enter the maximum fee (absolute amount)	Specifies the transaction fee. This changes with the commission mode. With commission 20000 or so (0.2cat.currency) No commission 0	0
Select the transaction announce mode	Specifies how transactions are an- nounced.	normal

Here the transaction fee is set to 0, but if there is a fee, the transaction fee will be charged, so you will need about 200000 instead of 0.

The fee calculation method will be the same as for Symbol.

<https://docs.symbol.dev/concepts/fees.html#transaction-fee>

<pre>(hode:196) [DEP0 →SecureContext ✓ Enter your wal ✓ Mosaics to tra sending 1 symbol ··· @cat.currency: ✓ Enter the reci →6TI ✓ Enter a messag ✓ Enter the maxi ✓ Select the tra</pre>	<pre>Dil] DeprecationWarning: crypto.Credentials is deprecated. Use tis. instead. let password: … ******** nsfer in the format (mosaicId(hex) @aliasName)::absoluteAmount, (Ex: .xym, @symbol.xym::1000000). Add multiple mosaics separated by commas: :100000000 pient address or @alias: … MA36BR-7DCFZT-65BQZP-TM5QND-EZKSB7-HNE4DU- e: … mum fee (absolute amount): … 0 nsaction announce mode: > normal</pre>			
	TRANSFER			
Max fee:	0			
Network type:	MIJIN			
Deadline:	2021-05-17 17:46:42.643			
Recipient:	MA36BR-7DCFZT-65BQZP-TM5QND-EZKSB7-HNE4DU-6TI			
Message:	N/A			
Mosaic (1/1):	1,000,000,000 cat.currency (85BBEA6CC462B244)			
	Signature details			
Payload:	B00000000000000000071E0E34240C563025C466C31BFA995D6DA4CADFFB0AD29A3 B2EFF280AD596BDA4CF5DC01B3654D9C34F56346B5DF41112EF27858C0ED1FCE CF409B5A450FC30E29800CB9DF988622AD4B940F578569321F4B7F08127C478A 0C0C28ACC61B8A2C00000000160544100000000000000005382BC300E000000 6037E0C7E311733F7430CBE6CEC1A3265520FCED27074F4D000001000000000 44B262C46CEABB8500CA9A3B0000000			
Hash:	864EF99D58E8DA837879D85DE08DF29398766E04F967F09732A2FD02115469FB			
Signer:	29800CB9DF988622AD4B940F578569321F4B7F08127C478A0C0C28ACC61B8A2C			
✓ Do you want to SUCCESS Transact TIP To check if	announce this transaction? … yes ion announced correctly the network confirms or rejects the transaction, run the command			

Check your profile mijin-a account. You can confirm that you have 1000cat.currency.

```
symbol-cli account info --profile mijin
" Processing(node:207) [DEP0091] DeprecationWarning: crypto.DEFAULT_ENCODING is
deprecated.
```

<pre>(node:207) [DEP0010] DeprecationWarning: crypto.createCredentials is deprecated. Use tls.createSecureContext instead. (node:207) [DEP0011] DeprecationWarning: crypto.Credentials is deprecated. Use tls.</pre>							
Property	Value						
Address	MA36BR-7DCFZT-65BQZP-TM5QND-EZKSB7-HNE4DU-6TI						
Address Height	959						
Public Key	T 707902962A0A2E32226243D1E7B98D2DD40261E9D3649543E7C28A0F024D4A38 						
Public Key Height	959						
Importance							
Importance Height	0						
Balance Information							
Mosaic Id	Relative Amount	Absolute Amount	Expiration Height				
04A125F887094D2A	1,000	100000000	Never				

3.3 Troubleshooting

mijin Catapult(v.2) troubleshooting is summarized here.

3.3.1 mijin Catapult(v.2) node resynchronization

mijin Catapult(v.2) node has stopped synchronizing for some reason, etc. This section describes the resynchronization procedure.

3.3.1.1 target

- Node blocking is not progressing.
- No longer able to check in /node/peers.
- Some containers are Exit in the docker-compose ps command and cannot be recovered.

3.3.1.2 Step.1

Remote login to the node. If you want to log in to AWS MarketPlace's mijin Catapult(v.2), you can use mijin Catapult(v.2) EC2 instance login how to.

3.3.1.3 Step.2

Switch to the 'catapult'user running mijin.

```
$ sudo su - catapult
catapult@api1:~$
```

3.3.1.4 Step.3

Go to the directory where the mijin startup files are located. Note that the directories are different for API and PEER nodes.

Node	Directory
API/Dual	mijin-catapult-package/package/ api /catapult/
PEER	mijin-catapult-package/package/ peer /catapult/

For API nodes, move as follows

```
catapult@api1:~$ cd mijin-catapult-package/package/api/catapult/
catapult@api1:~/mijin-catapult-package/package/api/catapult$
```

3.3.1.5 Step.4

Mijin launches multiple containers by docker. Check multiple containers.

For API nodes

Four containers are running. Make sure that all States are Up. If there is something wrong, the state will be Exit instead of Up and you will be in a down state.

```
catapult@api1:~/mijin-catapult-package/package/api/catapult$ docker-compose ps
                                   Command
                                                        State
         Name
                                                                      Ports
<u>____</u>
catapult_api-node-broker_1 bash -c /bin/bash /scripts ... Up
catapult_api-node_1
                       bash -c perl /scripts/wait ... Up
                                                              0.0.0.0:7900->
→7900/tcp
catapult_db_1
                         docker-entrypoint.sh bash ... Up
                                                               27017/tcp
catapult_rest-gateway_1 docker-entrypoint.sh ash - ... Up
                                                                0.0.0:3000->
→3000/tcp
```

In the case of PEER node

One container is activated. Make sure that all States are Up. If there is some abnormality, it will be Exit instead of Up and will be in a down state.

catapult@peer1:~/mijin-catapult=package/package/peer/catapult\$ docker-compose psNameCommandStatePortscatapult_peer-node_1bash -c /bin/bash /scripts ...Up0.0.0.0:7900->7900/tcp

3.3.1.6 Step.5

Stop and re-start all mijin containers using docker-compose.

All containers stopped

```
catapult@api1:~/mijin-catapult-package/package/api/catapult$ docker-compose down
Stopping catapult_rest-gateway_1 ... done
Stopping catapult_db_1 ... done
Removing catapult_api-node_broker_1 ... done
Removing catapult_rest-gateway_1 ... done
Removing catapult_api-node_1 ... done
Removing catapult_db_1 ... done
Removing catapult_db_1 ... done
Removing catapult_db_1 ... done
Removing catapult_db_1 ... done
```

After stopping, check the lock file and delete it if any.

If a lock file exists after the stop as shown above, it is considered to have stopped abnormally. Therefore, delete the lock file.

\$ rm -rf /mnt/mijin/blocks/data/broker.lock /mnt/mijin/blocks/data/server.lock

re-start

```
$ docker-compose up -d
Creating network "catapult_default" with the default driver
Creating catapult_db_1 ... done
Creating catapult_rest-gateway_1 ... done
Creating catapult_api-node-broker_1 ... done
Creating catapult_api-node_1 ... done
```

After startup, execute the items in Step.4 and make sure all containers are Up. If you are in a similar situation, go to Step.9.

3.3.1.7 Step.6

Reset and recover block data on a node. If in a redundant state, data can be automatically retrieved and recovered from other nodes.

All containers stopped

```
$ docker-compose down
Stopping catapult_rest-gateway_1 ... done
Stopping catapult_api-node_1 ... done
Removing catapult_api-node-broker_1 ... done
Removing catapult_rest-gateway_1 ... done
Removing catapult_api-node_1 ... done
Removing catapult_db_1 ... done
Removing network catapult_default
```

Delete block data and mongo data

The catapult user that mijin is running as does not have sudo privileges and cannot delete directories. Therefore, grant the catapult user sudo privileges. This sudo setting is required only for the first time.

```
# catapult ユーザーからログアウト Log out of catapult user
$ logout
# root ユーザーにスイッチ Switch to root user
$ sudo su -
# catapult ユーザーに sudo 権限を付与する Grant sudo privileges to the catapult user
# echo "catapult ALL=(ALL) NOPASSWD:ALL" > /etc/sudoers.d/catapult
# catapult ユーザーにスイッチ Switch to catapult user
# su - catapult
```

Delete block data with sudo privileges.

\$ sudo rm -rf /mnt/mijin/blocks/data

If API nodes are targeted, mongo data deletion is also required

\$ sudo rm -rf /mnt/mijin/mongo/db

Execute recovery commands

Go to the file with docker-compose and run the RECOVER script.

When the API node is the target

```
catapult@api1:~$ cd mijin-catapult-package/package/api/catapult/
catapult@api1:~/mijin-catapult-package/package/api/catapult$
```

When the PEER node is the target

```
catapult@peer1:~$ cd mijin-catapult-package/package/peer/catapult/
catapult@peer1:~/mijin-catapult-package/package/peer/catapult$
```

Execute scripts. (Common)

```
catapult@api1:~/mijin-catapult-package/package/api/catapult$ bash scripts/recover.sh
2021/07/14 02:52 Start: mijin Recovery
2021/07/14 02:52 Check: /home/catapult/mijin-catapult-package/package/api/catapult
2021/07/14 02:52 Check: /home/catapult/mijin-catapult-package/package/api/catapult OK
2021/07/14 02:52 Check: Started docker?
2021/07/14 02:52 Check: Started docker Stop OK
2021/07/14 02:52 Check: Block Directory
2021/07/14 02:52 Check: Block Directory Empty OK
2021/07/14 02:52 Start: Make Block Directory
2021/07/14 02:52 Check: mongo Directory
2021/07/14 02:52 Check: mongo Directory OK
2021/07/14 02:52 Start: Make mongo Directory
2021/07/14 02:52 Start: Create mongo Init Data
about to fork child process, waiting until server is ready for connections.
forked process: 10
child process started successfully, parent exiting
[+] Preparing db
MongoDB shell version v4.2.5
connecting to: mongodb://localhost:27017/catapult?compressors=disabled&
→gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("c296d026-dfdf-4ea2-ba03-91d7404e21c9") }
MongoDB server version: 4.2.5
Loading LockHash
Loading LockSecret
Loading Metadata
Loading Mosaic
Loading Multisig
Loading Namespace
Loading RestrictionAccount
Loading RestrictionMosaic
===== accountRestrictions INDEXES =====
{ "_id" : 1 }
{ "accountRestrictions.address" : 1 }
===== accounts INDEXES =====
{ "_id" : 1 }
{ "account.publicKey" : 1 }
{ "account.address" : 1 }
===== addressResolutionStatements INDEXES =====
```

```
(continued from previous page)
```

```
{ "_id" : 1 }
{ "statement.height" : 1, "statement.unresolved" : 1 }
===== blocks INDEXES =====
{ "_id" : 1 }
{ "block.signerPublicKey" : 1 }
{ "block.timestamp" : -1 }
{ "block.height" : -1 }
{ "block.type" : 1, "block.height" : -1 }
{ "block.signerPublicKey" : 1, "block.height" : -1 }
{ "block.beneficiaryAddress" : 1, "block.height" : -1 }
===== finalizedBlocks INDEXES =====
{ "_id" : 1 }
{ "block.finalizationEpoch" : -1 }
{ "block.height" : -1 }
===== hashLocks INDEXES =====
{ "_id" : 1 }
{ "lock.hash" : 1 }
{ "lock.ownerAddress" : 1 }
===== metadata INDEXES =====
{ "_id" : 1 }
{ "metadataEntry.compositeHash" : 1 }
{
        "metadataEntry.sourceAddress" : 1,
        "metadataEntry.metadataType" : 1,
        "metadataEntry.scopedMetadataKey" : 1
}
{
        "metadataEntry.targetAddress" : 1,
        "metadataEntry.metadataType" : 1,
        "metadataEntry.scopedMetadataKey" : 1
===== mosaicResolutionStatements INDEXES =====
{ "_id" : 1 }
{ "statement.height" : 1, "statement.unresolved" : 1 }
===== mosaicRestrictions INDEXES =====
{ "_id" : 1 }
{ "mosaicRestrictionEntry.compositeHash" : 1 }
===== mosaics INDEXES =====
{ "_id" : 1 }
{ "mosaic.id" : 1 }
{ "mosaic.ownerAddress" : 1 }
===== multisigs INDEXES =====
{ "_id" : 1 }
{ "multisig.accountAddress" : 1 }
===== namespaces INDEXES =====
{ "_id" : 1 }
{ "namespace.level0" : 1, "meta.index" : 1, "namespace.depth" : 1 }
{
        "meta.latest" : -1,
        "meta.index" : 1,
        "namespace.level0" : 1,
        "namespace.depth" : 1
}
{ "meta.latest" : -1, "namespace.level1" : 1, "namespace.depth" : 1 }
{ "meta.latest" : -1, "namespace.level2" : 1, "namespace.depth" : 1 }
{ "meta.latest" : -1, "namespace.ownerAddress" : 1 }
  === partialTransactions INDEXES =====
```

```
{ "_id" : 1 }
{ "transaction.signerPublicKey" : 1, "_id" : -1 }
{ "transaction.recipientAddress" : 1, "_id" : -1 }
{ "meta.hash" : 1 }
{ "meta.addresses" : 1 }
{ "meta.aggregateId" : 1 }
{ "meta.aggregateHash" : 1 }
===== secretLocks INDEXES =====
{ "_id" : 1 }
{ "lock.compositeHash" : 1 }
{ "lock.ownerAddress" : 1 }
===== system.profile INDEXES =====
===== transactionStatements INDEXES =====
{ "_id" : 1 }
{
        "statement.height" : 1,
        "statement.source.primaryId" : 1,
        "statement.source.secondaryId" : 1
===== transactionStatuses INDEXES =====
{ "_id" : 1 }
{ "status.hash" : 1 }
{ "status.deadline" : -1 }
===== transactions INDEXES =====
{ "_id" : 1 }
{ "transaction.signerPublicKey" : 1, "_id" : -1 }
{ "transaction.recipientAddress" : 1, "_id" : -1 }
{ "meta.hash" : 1 }
{ "meta.addresses" : 1 }
{ "meta.aggregateId" : 1 }
{ "meta.height" : -1 }
{ "transaction.deadline" : -1 }
{ "transaction.cosignatures.signerPublicKey" : 1 }
{ "transaction.id" : 1, "transaction.type" : 1 }
===== unconfirmedTransactions INDEXES =====
{ "_id" : 1 }
{ "transaction.signerPublicKey" : 1, "_id" : -1 }
{ "transaction.recipientAddress" : 1, "_id" : -1 }
{ "meta.hash" : 1 }
{ "meta.addresses" : 1 }
{ "meta.aggregateId" : 1 }
{ "meta.aggregateHash" : 1 }
bve
[.] (exit code: 0)
[+] db prepared, checking account indexes
MongoDB shell version v4.2.5
connecting to: mongodb://localhost:27017/catapult?compressors=disabled&
→gssapiServiceName=mongodb
Implicit session: session { "id" : UUID("a9d9d654-d0c9-4760-bf52-94138f4c6871") }
MongoDB server version: 4.2.5
Γ
        {
                "v" : 2,
                "key" : {
                        " id" : 1
```

```
"name" : "_id_",
                "ns" : "catapult.accounts"
        },
        {
                "v" : 2,
                "key" : {
                        "account.publicKey" : 1
                },
                "name" : "account.publicKey_1",
                "ns" : "catapult.accounts"
        },
        {
                "v" : 2,
                "unique" : true,
                "key" : {
                        "account.address" : 1
                },
                "name" : "account.address_1",
                "ns" : "catapult.accounts"
        }
2021-07-14T02:52:54.345+0000 I CONTROL [main] Automatically disabling TLS 1.0, to
force-enable TLS 1.0 specify --sslDisabledProtocols 'none'
2021-07-14T02:52:54.349+0000 W ASIO [main] No TransportLayer configured during
NetworkInterface startup
killing process with pid: 10
2021/07/14 02:52 Start: mijin docker-compose
Creating network "catapult_default" with the default driver
Creating catapult_db_1 ... done
Creating catapult_api-node-broker_1 ... done
Creating catapult_rest-gateway_1 ... done
Creating catapult_api-node_1
                                    ... done
2021/07/14 02:52 End: ALL Success
```

3.3.1.8 Step.7

Check the operation.

Confirmation of container operation

Make sure that all States are Up.

<pre>\$ docker-compose ps Name</pre>	Command	State	Ports
catapult_api-node-broker_1	bash -c /bin/bash /scripts	Up	
catapult_api-node_1 ⇔7900/tcp	<pre>bash -c perl /scripts/wait</pre>	Up	0.0.0.0:7900->
catapult_db_1	docker-entrypoint.sh bash	Up	27017/tcp
catapult_rest-gateway_1 ⇔3000/tcp	docker-entrypoint.sh ash	Up	0.0.0.3000->

Check to see if the block is progressing.

Check to see if the blocks are stacked. Run it on other nodes to see if they are progressing in the same block.

For API nodes

In the case of PEER node

```
$ docker-compose logs --tail=20 peer-node| grep heights
peer-node_1 | 2021-07-14 03:00:26.168343 0x00007fb1c396a700: <debug>
(disruptor::Disruptor.cpp@43) disruptor queuing element 942 (1 blocks (heights 403 -
403) [0000000] from Remote_Push with size 376B)
peer-node_1 | 2021-07-14 03:00:26.257224 0x00007fb1a57fa700: <info>
(disruptor::ConsumerDispatcher.cpp@44) completing processing of element 942 (1 blocks
(heights 403 - 403) [5C675B6B] empty from Remote_Push with size 376B), last consumer is
0 elements behind
peer-node_1 | 2021-07-14 03:00:26.317777 0x00007fb1c3169700: <debug>
(disruptor::Disruptor.cpp@43) disruptor queuing element 943 (1 blocks (heights 403 -
403) [0000000] from Remote_Push with size 376B)
peer-node_1 | 2021-07-14 03:00:26.368263 0x00007fb1a57fa700: <info>
(disruptor::ConsumerDispatcher.cpp@44) completing processing of element 943 (1 blocks
(heights 403 - 403) [5C675B6B] from Remote_Push with size 376B), last consumer is 0
elements behind
```

For API nodes, check if rest can connect

Check if node information can be obtained.

```
$ curl -Ss http://localhost:3000/node/info | jq -r
{
    "version": 16777216,
    "publicKey": "E4BF3706483B4D42243F3DCB2625021C3E3AE7C253CC466154EEDF9775012C20",
    "networkGenerationHashSeed":
    "2DE20B93EBE048A3BA132CC9874BCABBC21C87E18FE9836B8D5D002E57640D4B",
    "roles": 70,
    "port": 7900,
    "networkIdentifier": 96,
    "host": "api1.mijin.internal",
    "friendlyName": "api1.mijin.internal",
    "nodePublicKey": "27E7EEAF5819493D60CA848BAA48145A1A97DF63596ED41394563C791303C778"
}
```
3.3.2 Check the node log for mijin Catapult(v.2).

mijin Catapult(v.2) This is the procedure up to checking the logs of a node.

3.3.2.1 target

- Node blocking is not progressing.
- There is an error and I can't figure out the cause.

3.3.2.2 Step.1

Remote login to the node.

If you want to log in to AWS MarketPlace's mijin Catapult(v.2), you can use mijin Catapult(v.2) EC2 instance login how to.

3.3.2.3 Step.2

Switch to the 'catapult'user running mijin.

```
$ sudo su - catapult
catapult@api1:~$
```

3.3.2.4 Step.3

Go to the directory where the mijin startup files are located. Note that the directories are different for API and PEER nodes.

Node	Directory
API/Dual	mijin-catapult-package/package/ api /catapult/
PEER	mijin-catapult-package/package/ peer /catapult/

For API nodes, move as follows

```
catapult@api1:~$ cd mijin-catapult-package/package/api/catapult/
catapult@api1:~/mijin-catapult-package/package/api/catapult$
```

3.3.2.5 Step.4

Mijin launches multiple containers by docker. Check multiple containers.

For API nodes

Four containers are activated. Make sure that all States are Up.

For PEER node

One container is activated. Make sure that all States are Up.

catapult@peer1:~/mijin-catapult-package/package/peer/catapult\$ docker-compose ps					
Name	Command	State	Ports		
catapult_peer-node_1	bash -c /bin/bash /scripts	Up	0.0.0.0:7900->7900/tcp		

3.3.2.6 Step.5

The logs can be checked with the following command using docker-compose.

docker-compose logs

To learn more about docker-compose, please visit the following sites https://docs.docker.com/compose/

Below is an example of how to check.

Check the last XX line logs for each container

docker-compose logs --tail=10

```
catapult@api1:~/mijin-catapult-package/package/api/catapult$ docker-compose logs --
\rightarrowtail=10
Attaching to catapult_rest-gateway_1, catapult_api-node_1, catapult_api-node-broker_1,
catapult_db_1
api-node-broker_1 | 2021-06-14 00:41:32.447154 0x00007f59efb66700: <debug>
(subscribers::BrokerMessageReaders.h@90) preparing to process 1 messagesfrom /data/
→spool/block_change
api-node-broker_1 | 2021-06-14 00:41:32.447137 0x00007f59ef365700: <debug>
(subscribers::BrokerMessageReaders.h@90) preparing to process 2 messagesfrom /data/
→ spool/state_change
api-node-broker_1 | 2021-06-14 00:41:50.955992 0x00007f59efb66700: <debug>
(subscribers::BrokerMessageReaders.h@90) preparing to process 1 messagesfrom /data/
→spool/block_change
api-node-broker_1 | 2021-06-14 00:41:50.955975 0x00007f59ef365700: <debug>
(subscribers::BrokerMessageReaders.h090) preparing to process 2 messagesfrom /data/
⇔spool/state_change
api-node-broker_1 | 2021-06-14 00:42:05.963816 0x00007f59efb66700: <debug>
(subscribers::BrokerMessageReaders.h@90) preparing to process 2 messagesfrom /data/
⇔spool/state_change
api-node-broker_1 | 2021-06-14 00:42:05.966239 0x00007f59ef365700: <debug>
(subscribers::BrokerMessageReaders.h090) preparing to process 1 messagesfrom /data/
⇔spool/block_change
api-node-broker_1 | 2021-06-14 00:42:23.972546 0x00007f59efb66700: <debug>
(subscribers::BrokerMessageReaders.h@90) preparing to process 2 messagesfrom /data/
→spool/state_change
api-node-broker_1 | 2021-06-14 00:42:23.972928 0x00007f59ef365700: <debug>
(subscribers::BrokerMessageReaders.h090) preparing to process 1 messagesfrom /data/
→spool/block_change
api-node-broker_1 | 2021-06-14 00:42:41.982065 0x00007f59ef365700: <debug>
(subscribers::BrokerMessageReaders.h@90) preparing to process 1 messagesfrom /data/
→spool/block_change
api-node-broker_1 | 2021-06-14 00:42:41.982048 0x00007f59efb66700: <debug>
(subscribers::BrokerMessageReaders.h090) preparing to process 2 messagesfrom /data/
⇔spool/state_change
                   | 2021-06-14 00:42:41.523496 0x00007f1bda429700: <debug>
api-node_1
(chain::CompareChains.cpp@119) comparing chain scores: 7676859692801638166 (local) vs
7676974281840495032 (remote)
                  | 2021-06-14 00:42:41.523569 0x00007f1bda429700: <debug>
api-node_1
(chain::CompareChains.cpp@145) comparing hashes with local height 67006, starting height
66976, max hashes 1440
                  | 2021-06-14 00:42:41.529042 0x00007f1bdac2a700: <debug>
api-node_1
(chain::ChainSynchronizer.cpp0309) pulling blocks from remote with common height 67006
(fork depth = 0) from DEC1EF1767E76BC31DF2FDADC75C23F6FDA6ECCB22554E4F4C790F81F869F797
@ 10.0.3.199
api-node_1
                   | 2021-06-14 00:42:41.618591 0x00007f1bdac2a700: <info>
(chain::ChainSynchronizer.cpp@217) peer returned 1 blocks (heights 67007 - 67007)
                  | 2021-06-14 00:42:41.618764 0x00007f1bdac2a700: <debug>
api-node 1
(chain::ChainSynchronizer.cpp@223) completing chain synchronization with1 blocks (fork
depth = 0)
api-node_1
                   | 2021-06-14 00:42:41.618805 0x00007f1bdac2a700: <debug>
(disruptor::Disruptor.cpp@43) disruptor queuing element 66554 (1 blocks (heights 67007
- 67007) [00000000] from Remote_Pull with size 376B)
                  | 2021-06-14 00:42:41.618960 0x00007f1bdac2a700: <info>
api-node_1
```

(chain::RemoteApiForwarder.h@69) completed 'synchronizer task' (peer2.mijin.internal @ peer2.mijin.internal:7900) with result Success | 2021-06-14 00:42:41.676588 0x00007f1bb0ff9700: <debug> api-node_1 (cache::SupplementalDataStorage.cpp@32) wrote last recalculation height 67000 last finalized height 66976 dynamic fee multiplier 0 total transactions 34 (score = [0, 7676974281840495032], height = 67007) | 2021-06-14 00:42:41.714555 0x00007f1bb07f8700: <info> api-node_1 (disruptor::ConsumerDispatcher.cpp@44) completing processing of element 66554 (1 blocks (heights 67007 - 67007) [833B95DA] from Remote_Pull with size 376B), last consumer is 0 elements behind api-node_1 | 2021-06-14 00:42:50.247964 0x00007f1bdac2a700: <debug> (chain::RoundContext.cpp(89)) not completable - Erv == g(Vrv) and descendant can reach g(Crv) (total weight 15000000, cumulative precommit weight 3000000) db_1 | 2021-06-02T09:37:24.913+0000 I NETWORK [listener] connection accepted from 172.20.0.9:47924 #16 (15 connections now open) db 1 | 2021-06-02T09:37:24.913+0000 I NETWORK [conn16] received client metadata from 172.20.0.9:47924 conn16: { driver: { name: "nodejs", version: "3.6.0" }, os: { type: "Linux", name: "linux", architecture: "x64", version: "5.4.0-1029-aws" }, platform: "'Node.js v12.18.1, LE (legacy)" } db_1 | 2021-06-02T09:39:05.968+0000 I NETWORK [listener] connection accepted from 172.20.0.9:47942 #17 (16 connections now open) db_1 | 2021-06-02T09:39:05.969+0000 I NETWORK [conn17] received client metadata from 172.20.0.9:47942 conn17: { driver: { name: "nodejs", version: "3.6.0" }, os: { type: "Linux", name: "linux", architecture: "x64", version: "5.4.0-1029-aws" }, platform: "'Node.js v12.18.1, LE (legacy)" } db 1 | 2021-06-02T09:42:43.866+0000 I NETWORK [listener] connection accepted from 172.20.0.9:47948 #18 (17 connections now open) db 1 | 2021-06-02T09:42:43.869+0000 I NETWORK [conn18] received client metadata from 172.20.0.9:47948 conn18: { driver: { name: "nodejs", version: "3.6.0" }, os: { type: "Linux", name: "linux", architecture: "x64", version: "5.4.0-1029-aws" }, platform: "'Node.js v12.18.1, LE (legacy)" } | 2021-06-08T05:37:00.594+0000 I NETWORK [listener] connection db_1 accepted from 172.20.0.9:58874 #19 (18 connections now open) | 2021-06-08T05:37:00.596+0000 I NETWORK [conn19] received client db 1 metadata from 172.20.0.9:58874 conn19: { driver: { name: "nodejs", version: "3.6.0" }, os: { type: "Linux", name: "linux", architecture: "x64", version: "5.4.0-1029-aws" }, platform: "'Node.js v12.18.1, LE (legacy)" } | 2021-06-12T02:52:21.305+0000 I NETWORK [listener] connection db_1 accepted from 172.20.0.9:37814 #20 (19 connections now open) db 1 | 2021-06-12T02:52:21.310+0000 I NETWORK [conn20] received client metadata from 172.20.0.9:37814 conn20: { driver: { name: "nodejs", version: "3.6.0" }, os: { type: "Linux", name: "linux", architecture: "x64", version: "5.4.0-1029-aws" }, platform: "'Node.js v12.18.1, LE (legacy)" } > node _build/index.js "/userconfig/rest.json" rest-gateway_1 rest-gateway_1 rest-gateway_1 [winston] Attempt to write logs with no transports {"message": ↔ "loading config from /userconfig/rest.json", "level": "info"} rest-gateway_1 | info: loading config from /userconfig/rest.json rest-gateway_1 | verbose: finished loading rest server config {"network":{"name": -- "mijin", "description": "mijin network"}, "port": 3000, "crossDomain": {"allowedHosts": ["* ←"],"allowedMethods":["GET","POST","PUT","OPTIONS"]},"extensions":["accountLink", where the second -- "tlsClientCertificatePath":"/userconfig/resources/cert/node.crt.pem", → "tlsClientKeyPath": "/userconfig/resources/cert/node.key.pem", "tlsCaCertificatePath": (continues on next page)

```
→ "/userconfig/resources/cert/ca.cert.pem", "timeout":1000, "networkPropertyFilePath":"/
→api-node-config/config-network.properties", "nodePropertyFilePath": "/api-node-config/

→config-node.properties"}, "websocket": { "mq": { "host": "api-node-broker", "port": 7902,

-- "monitorInterval":500, "connectTimeout":10000, "monitorLoggingThrottle":60000},
→":{"formats":["colorize", "simple"], "level": "verbose", "handleExceptions":true}, "file":
→{"formats":["prettyPrint"],"level":"verbose","handleExceptions":true,"filename":
→ "catapult-rest.log", "maxsize":20971520, "maxFiles":100}}, "numBlocksTransactionFeeStats
→":300, "timestamp": "2021-06-02T09:27:19.336Z" }
rest-gateway_1 | info: connecting to mongodb://db:27017/ (database:catapult) {
→ "timestamp": "2021-06-02T09:27:19.407Z" }
rest-gateway_1 | (node:24) DeprecationWarning: current Server Discovery and
Monitoring engine is deprecated, and will be removed in a future version. To use the new
Server Discover and Monitoring engine, pass option { useUnifiedTopology: true } to the
MongoClient constructor.
rest-gateway_1 | verbose: connected to mongo at mongodb://db:27017/catapult {

witimestamp":"2021-06-02T09:27:19.443Z"

rest-gateway_1 | info: registering routes {"timestamp":"2021-06-02T09:27:19.445Z"}
rest-gateway_1
                  | info: listening on port 3000 {"timestamp":"2021-06-02T09:27:19.4622
\hookrightarrow "}
```

Checks for each specified container

By specifying the hostname of a container, the log output is focused on a specific container. Host names are fixed.

- api-node
- peer-node
- api-node-broker
- db
- rest-gateway

docker-compose logs [コンテナ名 Container name]

```
catapult@api1:~/mijin-catapult-package/package/api/catapult$ docker-compose logs rest-
⇔gateway
Attaching to catapult_rest-gateway_1
rest-gateway_1
                > catapult-api-rest@0.0.0 start /app/catapult-rest/rest
rest-gateway_1
rest-gateway_1
                > node _build/index.js "/userconfig/rest.json"
rest-gateway_1
                rest-gateway_1
                [winston] Attempt to write logs with no transports {"message":
→"loading config from /userconfig/rest.json","level":"info"}
                | info: loading config from /userconfig/rest.json
rest-gateway_1
rest-gateway_1
                 | verbose: finished loading rest server config {"network":{"name":
→"mijin","description":"mijin network"},"port":3000,"crossDomain":{"allowedHosts":["*
↔"],"allowedMethods":["GET","POST","PUT","OPTIONS"]},"extensions":["accountLink",
→ "aggregate", "lockHash", "lockSecret", "mosaic", "metadata", "multisig", "namespace",
→ "receipts", "restrictions", "transfer"], "db":{"url": "mongodb://db:27017/", "name":

→ "baseRetryDelay":750}, "apiNode": { "host": "api-node", "port":7900,
```

```
→ "tlsClientCertificatePath": "/userconfig/resources/cert/node.crt.pem",
→"tlsClientKeyPath":"/userconfig/resources/cert/node.key.pem","tlsCaCertificatePath":
→api-node-config/config-network.properties", "nodePropertyFilePath": "/api-node-config/

config-node.properties"}, "websocket":{"mq":{"host":"api-node-broker", "port":7902,
→ "monitorInterval":500, "connectTimeout":10000, "monitorLoggingThrottle":60000},
→":{"formats":["colorize", "simple"], "level": "verbose", "handleExceptions":true}, "file":
→{"formats":["prettyPrint"],"level":"verbose","handleExceptions":true,"filename":
↔":300, "timestamp": "2021-06-02T09:27:19.336Z"}
rest-gateway_1 | info: connecting to mongodb://db:27017/ (database:catapult) {

→ "timestamp": "2021-06-02T09:27:19.407Z"
}
rest-gateway_1 | (node:24) DeprecationWarning: current Server Discovery and
Monitoring engine is deprecated, and will be removed in a future version. To use the new
Server Discover and Monitoring engine, pass option { useUnifiedTopology: true } to the
MongoClient constructor.
rest-gateway_1 | verbose: connected to mongo at mongodb://db:27017/catapult {

witimestamp":"2021-06-02T09:27:19.443Z"

rest-gateway_1 | info: registering routes {"timestamp":"2021-06-02T09:27:19.445Z"}
rest-gateway 1
               | info: listening on port 3000 {"timestamp":"2021-06-02T09:27:19.462Z
\rightarrow "}
```

3.3.3 Update encrypted communication between nodes

This chapter describes how to update certificates used for inter-node communication.

Note:

When you deploy mijin Catapult(v.2) via AWS MarketPlace, the initial data is backed up in the AWS Systems Manager Parameter Store.

Note that the following parameter values are subject to update and will differ between the node and the AWS Systems Manager Parameter Store.

The difference does not affect the operation.

- /Crown name specified at deploy time/shares/new-cert/each node/CA/[*].pem
- · /Crown name specified at deploy time/shares/nemesis_addresses_harvesting.json
- /Crown name specified at deploy time/shares/nemesis_addresses_harvesting_voting.json
- · /Crown name specified at deploy time/shares/nemesis_addresses_harvesting_vrf.json

3.3.3.1 mijin Catapult(v.2) encrypted communication between nodes

mijin Catapult(v.2) communicates between nodes using SSL encryption with TLS1.3 at **TCP port/7900**, and only recognized nodes are communicated with as correct nodes.

For SSL communication, a self-signed certificate is applied to each node, and the node pre-registers the KeyPair public key of every node's self-signed certificate.

The KeyPair created from this self-signed certificate is also used as the authorized account that can generate the blockchain.



3.3.3.2 How to renew a node's SSL certificate

The procedure for updating SSL certificates used between nodes is as follows

- 1. CA and signing node SSL certificate creation (used for communication between nodes)
- 2. Retrieve the private key from the KeyPair of the SSL certificate of 1 and issue a transaction to enable block generation for the node on the mijin Catapult(v.2) blockchain
- 3. Create a private key and a dat file for finalization tied to the private key of 2, and issue a transaction to tie it to the private key of 2.
- 4. Replace the SSL certificate and dat file on the relevant node.
- 5. Replace the public key of the target node in the configurations of all nodes with the key of 2.

Warning:

As of 2022/10, the procedure for renewing SSL certificates is complex and varies from environment to environment, so please contact mijin Support.

In the future, we plan to provide an easy way to update the data with tools.

3.4 mijin Catapult(v.2) data directory structure

This section describes the data structure of mijin.

3.4.1 Directory of data placement

Directory	Description
/home/catapult/mijin-catapult-package	Directories related to mijin config files and other packages
/mnt/mijin/blocks	mijin's block data directory
/mnt/mijin/mongo	mijin's mongo data directory

3.4.2 Structure of mijin package

3.4.2.1 API Node

г

/home/catapult/mijin-catapult-package
├── default # mijin 構築時に使用するディレクトリ (データとしては不要) Directory to be used when
building mijin (not required as data)
catapult
bin-mount
│ │ │ ├── await
│ │ │ ├── wait
│ │ │ └── waitmongo
mongo
mongoDbDrop.js
mongoDbPrepare.js
mongoDeploy.sh
mongoLockHashDbPrepare.js
mongoLockSecretDbPrepare.js
mongoMetadataDbPrepare.js
mongoMosaicDbPrepare.js
mongoMultisigDbPrepare.js
mongoNamespaceDbPrepare.js
mongoRestrictionAccountDbPrepare.js
mongoRestrictionMosaicDbPrepare.js
mongors.sh
nemgen
nemgen.sh
scripts
prepare.sh
runServerRecover.sh
startApiServer.sh
startBroker.sh
startServer.sh
tools
clean-all.sh
clean-data.sh
usr
└── catapult
bin-mount
—— package # mijin 構築パッケージ Package for building mijin
└── api # api ノード用のパッケージ Package for api node
catapult
│ docker-compose.yml # docker コンテナを起動する compose ファイル compose file
to start docker container
- scripts
prepare.sh
│
<pre> </pre>





3.4.2.2 PEER Node







3.4.3 Block Data Structure



3.4.4 Mongo Data Structure

/mnt/mijin/mongo/
└── db # mongo のデータディレクトリ mongo data directory
WiredTiger
WiredTiger.lock
WiredTiger.turtle
WiredTiger.wt
WiredTigerLAS.wt
mdb_catalog.wt
— collection-01310205274663118138.wt
— collection-03714664905013916938.wt
— collection-1081310205274663118138.wt
— collection-1151310205274663118138.wt
— collection-1221310205274663118138.wt
├── collection-1291310205274663118138.wt

	collection-1381310205274663118138.wt
	collection-1451310205274663118138.wt
	collection-1501310205274663118138 wt
	collection 1621310205274663118138 wt
	collection 162 1310205274663118138 wt
	colloction-21310205274663118138 wt
	collection 2 1310205274003110130.wc
	collection = 25 = -1210205274662119128 wt
	collection - 4 - 1210205274662119120 wt
	collection = 4 = -13102052/4003110130.wt
	COTTECTION-361310205274663116136.wt
	collection-611310205274663118138.Wt
	Collection-6613102052/4663118138.Wt
	collection-/l13102052/4663118138.wt
	collection-/813102052/4663118138.Wt
	collection-813102052/4663118138.wt
	collection-913102052/4663118138.wt
	collection-931310205274663118138.wt
	diagnostic.data
	index-11310205274663118138.wt
	index-13714664905013916938.wt
	index-101310205274663118138.wt
	index-1021310205274663118138.wt
	index-1041310205274663118138.wt
	index-1061310205274663118138.wt
	index-1091310205274663118138.wt
	index-111310205274663118138.wt
	index-1101310205274663118138.wt
	index-1131310205274663118138.wt
	index-1161310205274663118138.wt
	index-1171310205274663118138.wt
	index-1201310205274663118138.wt
	index-1231310205274663118138.wt
	index-1241310205274663118138.wt
	index-1271310205274663118138.wt
	index-131310205274663118138.wt
	index-1301310205274663118138.wt
	index-1311310205274663118138.wt
	index-1341310205274663118138.wt
	index-1361310205274663118138.wt
	index-1391310205274663118138.wt
	index-1401310205274663118138.wt
	index-1431310205274663118138.wt
	index-1461310205274663118138.wt
	index-1471310205274663118138.wt
	index-1511310205274663118138.wt
<u> </u>	index-1521310205274663118138.wt
	index-1541310205274663118138.wt
	index-1561310205274663118138.wt
	index-1581310205274663118138.wt
	index-161310205274663118138.wt
<u> </u>	index-1601310205274663118138.wt
<u> </u>	index-1631310205274663118138.wt
<u> </u>	index-1641310205274663118138.wt
<u> </u>	index-1681310205274663118138.wt
	index-1691310205274663118138.wt
<u> </u>	index-191310205274663118138.wt
<u> </u>	index-221310205274663118138.wt

	(11111111111111111111111111111111111111	1
index-371310205274663118138.wt		
index-461310205274663118138.wt		
├── index-751310205274663118138.wt		
├── index-801310205274663118138.wt		
├── index-821310205274663118138.wt		
index-871310205274663118138.wt		
index-891310205274663118138.wt		
index-911310205274663118138.wt		
index-941310205274663118138.wt		
journal		
mongod.lock		
- sizeStorer.wt		
🖵 storage.bson		

3.5 mijin Catapult(v.2) environment building options table

We typically use Ansible to build mijin environments, and the ansible option in the Playbook is shown here.

No	item name	Default value	Input value	説明
1	service	peer	peer,api	
				Specify the mode in which ansible is to be built. [peer] Build in peer mode [api] Build in api mode

No	item name	Default value	Input value	説明
2	share_mode	dir	dir,ssm,s3	
				Places the initial address used when creating
				the Nemesis block.
				[dir] Stored only in share_directory.
				[ssm] Store in AWS SSM parameter store.
				[s3] Save to AWS S3.
3	aws region	ap-northeast-1	String	
-			8	Constitutes ANNC versions. Constitutes the version
				will be used to retrieve to S3 and SSM
				https://docs.aws.amazon.com/ia ip/
				AWSEC2/latest/UserGuide/
				using-regions-availability-zones.html#
				concepts-available-regions>
4	ssm_ps_name			share_mode: For ssm, specify the path to be
-				stored in the SSM parameter store.
5	s3_bucket_name			share_mode: For s3, specify the S3 bucket name.
6	api_dual_mode	FALSE	true,false	
				service: ani の提合 dual モードで起動するか
				を指定します。
				[Yes] Start in dual mode. (Enable Harvest)
				[No] Starts in normal mode.
7	ani hosts	[102 169 06 121]	Array[String	Specify the best name or IP address of the API
'	api_103t3	[192.100.90.191]	String]	node as an array.
8	peer_hosts	[192.168.96.132,	Array[String,	Specify the hostname or IP address of the PEER
		192.168.96.133]	String]	node as an array.
9	unix_user	catapult	String	Specify the user who will launch mijin.
10	repo_name	package	String	
		P		Specify the directory where the mijin
				application is located.
				/nome/[unix_user]/[repo_name]
11	catapult_version	v10038	v10038,v10037	
				Specifies the version of catapult.
				v10038
10				
12	network_identifier	mijin	mijin,mijin- test	Specify the network type to be built with mijin.
13	mongo_docker_version	4.2.5	String	
	0			Specifies the version of the mange container
				image used by the API node.
				<https: _="" hub.docker.com="" mongo?tab="tags"></https:>
14	mongo_host	db	String	Specify the mongo container name for the API node.
15	mongo_max_connection	7	Int	Specify the API node's connection limit to
				mongo.
16	mongo_base_retry_delay	750	Int	Specify the connection retry time to mongo for
17	python docker version	3.9.0	String	Specify the docker version of python.
18	enable_pip_install	FALSE	true,false	Specify whether to run pip install.
19	share_directory	/opt/mijin/shares	String	
				Nemesis ブロック作成時にアドレスデータを保
				管するディレクトリを指定します。
				s3/ssm を指定しても、一時保存場所として使用
				C16み 90
20	block_directory	/opt/mijin/blocks	String	Specify the directory where block data is stored
				for each node.
21	mongo_directory	/opt/mijin/mongo	String	Specify the directory where mongo data is stored for the API node
22	docker_network_range	172.20.0.0/24	String	Specifies the network range used by docker.
	0	1 · · · · ·		

Table 1 – continued from previous page

		Table T - continued from	n previous page	
No	item name	Default value	Input value	説明
23	rest_ip_address	172.20.0.9	String	docker ネットワーク上での rest-gateway コン テナの IP アドレスです。
24	domain	mijin.internal	String	各ノード間の通信で使用する SSL 証明書の CN を指定します。
25	node_port	7900	Int	Specifies the TCP port number to be used for communication between each node.
26	enable cache database storage	TRUE	true false	
20	enable_coone_coologe			キャッシュデータ保存を有効化します。 Disabling it may improve processing performance.
27	enable_auto_sync_cleanup	TRUE	true,false	Specifies automatic deletion of temporary syn- chronization files.
28	base_namespace	cat	String	Specifies the root namespace to be used for the base currency.
29	base_currency_name	currency	String	Specifies the subnamespace to be used for the base currency.
30	base_harvest_name	harvest	String	Harvest モザイクのネームスペースを指定しま す。
31	currency_supply	8,998,999,998,000,000	String	Specifies the amount of base currency issued. With quotes.
32	harvest_supply	15'000'000	String	Specifies the amount of Harvest mosaic issued.
33	block generation target time	15s	String	ブロック生成間隔を指定します(例: 15s)
34	rest gateway private key num	1	Int	rest gatewayのアドレス作成数を指定します。
35	nemesis generation hash num	- 1	Int	Nemesis 田の Generation Hash アドレス作成数。
36	nemesis_generation_nasn_num	1	Int	Number of addresses created for Harvest (same
30		4		number as number of nodes required)
31	nemesis_signer_private_key_num	1	Int	ally 1)
38	nemesis_addresses_num	10	Int	Number of empty (unused) addresses created.
39	transaction_selections_trategy	oldest	String	Select from oldest, maximize-fee, minimize- fee, etc.
40	max_time_behind_pull_transaction_start	5m	String	Maximum allowable delay for Pull transac- tions.
41	min_fee_multiplier	100	Int	Minimum commission multiplier. 0 for free.
42	default_dynamic_fee_multiplier	1'000	String	Base coefficient for dynamic fees.
43	root_namespace_rental_fee_per_block	1	Int	Rental fee per block of root namespace.
44	child_namespace_rental_fee	100	Int	子ネームスペースのレンタル料。
45	mosaic rental fee	500	Int	モザイクのレンタル料。
46	rest_throttling_burst	100	Int	Maximum number of REST connections during burst.
47	rest_throttling_rate	30	Int	Normal REST connection processing rate.
48	unconfirmd_cache_max_response_size	20MB	String	未承認トランザクション受信の最大サイズ。
49	unconfirmd_cache_max_size	5MB	String	未承認トランザクションのキャッシュ最大サイ ズ。
50	cache_max_response_size	20MB	String	(旧バージョン向け)未承認 Tx の応答最大サイ ズ。
51	cache_max_size	50'000	String	(旧バージョン向け)キャッシュ Tx の最大数。
52	block_disruptor_slot_count	4096	Int	ブロック処理用スロット数。
53	block_element_trace_interval	1	Int	ブロック要素のトレース間隔。
54	block_disruptor_max_memory_size	300MB	String	ブロックディスラプターの最大メモリ。
55	transaction disruptor slot count	8192	Int	トランザクション処理用スロット数。
56	transaction element trace interval	10	Int	トランザクション要素のトレース間隔。
57	max transaction per block	6'000	String	Maximum number of transactions in one block
58	min transaction failures count for ban	8	Int	トランザクション失敗回数の BAN 闘値
50	min transaction failures percent for her	10	Int	
50	nartial cache may response size	5MR	String	i シンツノンコンへ水平の DAN 殿 胆。
61	partial_cache_max_size	20MB	String	Maximum partial transaction response size. 部分トランザクションキャッシュ全体の最大サ
62	enable_finalization	TRUE	true,false	1 <i>へ</i> 。 ファイナライゼーションプラグインを有効化す ろか
63	max_rollback_blocks	0	Int	Maximum number of blocks that can be rolled back (definitive at 0).
64	enable voting	TRUF	true false	Voting 機能を有効にするか。
65	voting set grouping	160	Int	Voting ラウンドのブロック粉(impor
05	voung_set_grouping	100		tance grouping の倍数)。

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No	item name	Default value	Input value	前明
66	votingkey_start_epoch	1	Int	VotingKey の最小有効期間(エポック単位)。
67	votingkey_end_epoch	26280	Int	Maximum validity period of the VotingKey (e.g., approximately 821 days).
68	voting_key_dilution	128	Int	Voting key dilution level (reuse interval).
69	enable_revote_on_boot	FALSE	true,false	Do they automatically re-poll on startup
70	importance_grouping	40	Int	Number of Importance rounds (impact score update interval).
71	max_transaction_lifetime	24h	String	Transaction validity period (e.g., 24h).
72	max_block_future_time	500ms	String	Maximum allowable time for future block re- ception.
73	max_transactions_per_aggregate	1'000	String	Maximum number of Tx to be included in the aggregate Tx (100 in Symbol).
74	max_cosignatures_per_aggregate	25	Int	Maximum number of signatures that can cosign an aggregate Tx.
75	max_bonded_transaction_lifetime	48h	String	Aggregate bonded Tx validity period.
76	locked_funds_per_aggregate	10'000'000	String	Aggregate Tx lock deposit.
77	max_hash_lock_duration	2d	String	The validity period of the hash lock.
78	max_secret_lock_duration	30d	String	The maximum validity period of the Secret Lock.
79	min_proof_size	1	Int	シークレットプルーフの最小バイト数。
80	max_proof_size	1000	Int	シークレットプルーフの最大バイト数。
81	max_meta_value_size	1024	Int	Maximum size (in bytes) of the metadata Value.
82	max_cosignatories_per_account	25	Int	アカウントの連署者数の上限。
83	max_cosigned_accounts_per_account	25	Int	1アカウントが連署できるアカウント数の上限。
84	max_multisig_depth	3	Int	Upper limit on the depth of the multisig hierar- chy.
85	max_mosaics_per_account	1'000	String	The number of mosaics an account can hold.
86	max_mosaic_duration	3650d	String	Maximum validity period of the mosaic (in days)
87	max_mosaic_divisibility	6	Int	Maximum number of decimal places in the mo- saic.
88	max_name_size	64	Int	Maximum length (characters) of the names- pace name.
89	max_child_namespaces	256	Int	Number of child namespaces that the parent namespace can have.
90	max_namespace_depth	3	Int	Maximum depth of the namespace hierarchy.
91	min_namespace_duration	1m	String	Minimum validity period of the namespace.
92	max_namespace_duration	3650d	String	Maximum validity period of the namespace.
93	namespace_grace_period_duration	30d	String	Grace period after the namespace expiration date.
94	max_account_restriction_values	512	Int	Maximum number of values that can be set for account limits.
95	max_mosaic_restriction_values	20	Int	Maximum number of values that can be set for the mosaic limit.
96	max_message_size	1024	Int	トランザクションメッセージの最大バイト数。

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