Datomic Cloud Documentation

Search

What is Datomic?

- Data Model
- Architecture
- Supported Operations
- Programming with Data and EDN

Local Dev and CI

Cloud Setup

- Start a System
- Configure Access
- Get Connected

Tutorial

- Client API
- Assertion
- Read
- Accumulate
- Read Revisited
- Retract
- History

Client API

Videos

- AWS Setup
- Edn
- Datalog
- Datoms
- HTTP Direct
- CLI tools

Schema

- Defining Attributes
- Schema Reference
- Changing Schema
- Data Modeling
- Schema Limits

Transactions

- Processing Transactions
- Transaction Data Reference
- Transaction Functions
- ACID
- Client Synchronization

Query and Pull

- Executing Queries
- Query Data Reference
- Pull
- Index-pull
- Raw Index Access

Time in Datomic

- Log API
- Time Filters

Ions

- Ions Tutorial
- Ions Reference
- Monitoring Ions

Analytics Support

- Configuration
- Connecting
- Metaschema
- SQL CLI
- Troubleshooting

Analytics Tools

- Metabase
- R
- Python
- Jupyter
- Superset
- JDBC
- Other Tools

Operation

- Planning Your System
- Start a System
  ChecklistPrerequisitesCreate Storage StackCreate Compute Stack
- AWS Account Setup
- Access Control
- CLI Tools
- Client Applications
- High Availability (HA)
- Howto
- Query Groups
- Monitoring
- Upgrading
- Scaling
- Deleting
- Splitting Stacks

Tech Notes

- Turning Off Unused Resources
- Reserved Instances
- Lambda Provisioned Concurrency

Best Practices

Troubleshooting

FAQ

Examples

Releases

Glossary

Start a System

There are two ways to start a Datomic System.

- This page contains the split stack instructions, and is recommended for experienced users.
- First-time users should skip this page, and follow the instructions for using the AWS Marketplace template.

Checklist

Starting a system requires three steps:

- ensure that you have the prerequisites
- create a storage stack

- create a compute stack

Prerequisites

Before you can start a system, you must have:

- an AWS account that is EC2-VPC only
- an EC2 Key Pair
- a subscription to Datomic Cloud

Create Storage Stack

Stack Creation

- Head over to the CloudFormation console page at AWS.
- Click "Create Stack"

Template selection

The template to be used depends on your needs, but it is *highly* recommended to use the most current version.

- Go to the Release History.
- Click the file icon of the Storage version you'd like.
  - This copies the template URL to your clipboard in most modern browsers.
- Return to the AWS "Select Template" screen and paste the template URL under `Specify an Amazon S3 Template URL`.
- Click "Next"

"Specify Details" Screen

Fill in the template's parameter values as specified below.

Stack Name
: Choose a good name for your system. Use only lowercase letters, numbers, and hyphens. ASCII characters only. Your system name gets concatenated in various contexts and so should be kept short, e.g. fewer than 24 characters.

  - Remember this Stack Name for later use.

Reuse existing storage
: Set this to "False".

This CloudFormation Template creates a VPC in which to run Datomic Cloud. Configure the settings for the VPC in the VPC Configuration section. See the AWS VPC Guide for details on specifying the CIDR blocks. Unless you know you need to change the CIDR block settings, you should accept the default configuration.

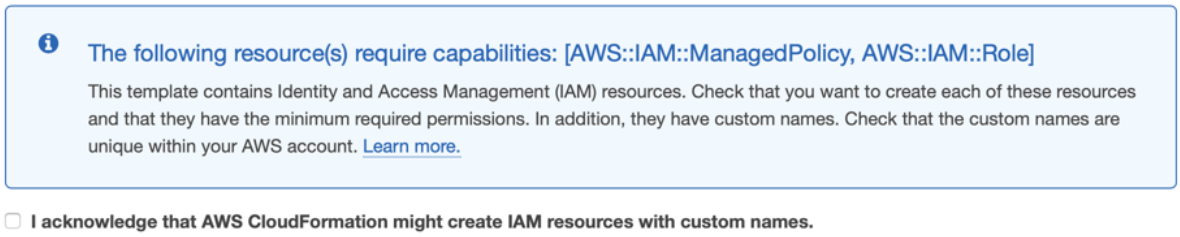
VPC CIDR block
: The CIDR block to assign to the VPC. Accept the defaults.

First, Second, and Third CIDR Blocks.
: Datomic will configure three subnets in the VPC. These three CIDR Blocks must be subsets of the VPC CIDR Block, and they must not overlap with each other. Accept the defaults.

Click the **Next** button.

- "Options" Screen
    1. Leave the default settings
    2. Click the **Next** button.
- "Review" Screen

    1. Under "Capabilities", click the checkbox stating "I acknowledge that AWS CloudFormation might create IAM resources with custom names." You may need to scroll down.



    2. Click the checkbox stating "I acknowledge that AWS CloudFormation might require the following capability: `CAPABILITY_AUTO_EXPAND`"
    3. Click "Create" to launch the stack.
- Verify `CREATE_COMPLETE`

    Wait for the template to report `CREATE_COMPLETE`. This can take up to 25 minutes. You can refresh the CloudFormation dashboard to see progress.

Create Compute Stack

- Head over to the CloudFormation console
- Click "Create Stack"

Template selection

The template to be used depends on your needs, but it is *highly* recommended to use the most current version.

- Go to the Release History.
- Click the file icon of either "Solo" or "Production", depending on what your needs are.
    - This copies the template URL to your clipboard in most modern browsers.
- Return to the AWS "Select Template" screen and paste the template URL under `Specify an Amazon S3 Template URL`.
- Click "Next"

"Specify Details" Screen

Fill in the template's parameter values as specified below.

Stack Name
: Choose a name for your system. Use only lowercase letters, numbers, and hyphens. ASCII characters only. Your system name gets concatenated in various contexts and so should be kept short, e.g. fewer than 24 characters.

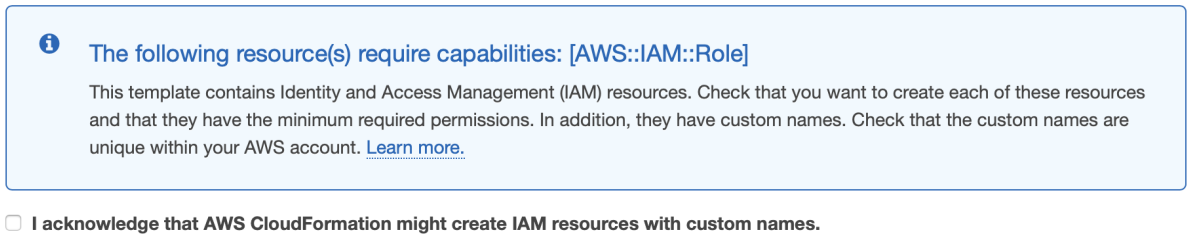
- This must be *different* from the storage stack name.

System Name
Set this to the Storage Stack "Stack Name" that you created in the previous step.
AWS EC2 Key Pair
The key pair to assign to compute nodes. Select a key pair for ssh access to nodes and the access gateway.
Application Name
Leave this blank to create an application with the same name as the system.
Environment Map
Ion environment map. Set to `{:env :dev}` for now.
Preload Database
All compute group instances will load this database when they start.
Access Gateway Instance Type
Choose 'nano' to allow only Client API through the access gateway. Choose an instance type larger than 'nano' to enable both the Client API and analytics support.
Analytics Endpoint
Provide the name of the query group you would like all analytics queries to be routed to. Defaults to system name (primary compute group).
Existing IAM managed policy for instance
Utilize an existing IAM managed policy for this compute instance.

- "Options" Screen
  1. Leave the default settings
  2. Click the **Next** button.
- "Review" Screen

  Review your settings to make sure that they are correct. "Access Gateway Instance Type" and "KeyName" are of particular importance.

  1. Under "Capabilities", click the checkbox stating "I acknowledge that AWS CloudFormation might create IAM resources with custom names." You may need to scroll down.



  2. Click the checkbox stating "I acknowledge that AWS CloudFormation might require the following capability: `CAPABILITY_AUTO_EXPAND`"
  3. Click "Create" to launch the stack.
- Verify System

  Your Datomic system will have a Cloudwatch dashboard named datomic-(*System*)−(Region). Open the CloudWatch dashboards and refresh the window until your dashboard appears. *This can take several minutes*.

  If your dashboard does not appear after 25 minutes, check for a possible CloudFormation failure.

Once your dashboard is visible, click on it and find the "Alerts, Events" widget. If this shows zero Alerts and nonzero Events, your system is ready to go.

In the event of failure, check the troubleshooting page.

Once you have verified that your new system is working, you will want to configure access for users.