



Interacting with Nomad





How Do I Managed Nomad?

Nomad includes three different interfaces....

- Nomad CLI
- API
- User Interface (UI)

All these interfaces are available to the user as long as Nomad is running



Nomad CLI

- The CLI requires that you have the Nomad binary installed on your machine
<https://releases.hashicorp.com/nomad/>
- You don't need to log into a Nomad server to interact with Nomad. You can easily interact with Nomad clusters deployed in your datacenter by using the Nomad CLI on your own laptop/desktop.
- Nomad also has an autocomplete that you can install for tab completion

```
TERMINAL
$ nomad -autocomplete-install
```



Remotely Connect to Nomad

Use your local machine to interact with Nomad



- Your machine doesn't need to have Nomad running to interact with a Nomad cluster....you just need the Nomad CLI (binary) installed
- To interact with a remote Nomad host, set the environment variable **NOMAD_ADDR**

```
$ export NOMAD_ADDR=https://nomad.example.com:4646
```



```
PS> $env:NOMAD_ADDR = "https://nomad.example.com:4646"
```



- Alternatively, you can use the **-address** flag when running commands

```
$ nomad server members -address=https://nomad.example.com:4646
```

*Using a flag on the CLI takes precedence over environment variables



Environment Variables

Most popular environment variables



NOMAD_ADDR

The address of the Nomad server you want to interact with...

NOMAD_REGION

The region of the Nomad server to forward commands to...

NOMAD_NAMESPACE

The target namespace for queries and actions that you want to use...

NOMAD_TOKEN

The ACL token you want to use to authenticate to Nomad...



Nomad SubCommands

- All commands in the Nomad CLI start with **nomad**
- Nomad has an extensive CLI with lots of subcommands

- | | | |
|---------------------------|-------------------------------|-------------------------|
| • <code>acl</code> | • <code>license</code> | • <code>sentinel</code> |
| • <code>agent</code> | • <code>monitor</code> | • <code>server</code> |
| • <code>agent-info</code> | • <code>namespace</code> | • <code>service</code> |
| • <code>alloc</code> | • <code>node</code> | • <code>status</code> |
| • <code>config</code> | • <code>operator</code> | • <code>system</code> |
| • <code>deployment</code> | • <code>plugin</code> | • <code>ui</code> |
| • <code>eval</code> | • <code>quota</code> | • <code>var</code> |
| • <code>fmt</code> | • <code>recommendation</code> | • <code>version</code> |
| • <code>job</code> | • <code>scaling</code> | • <code>volume</code> |



Nomad CLI



- Nomad CLI supports help commands
- Use `-h` or `--help`
 - or just press enter to see a list of available commands
- The CLI is *<mostly>* used for managing jobs and therefore defaults to working with jobs unless you specify a different command name
- Examples:
 - `nomad run myapp.nomad` is equal to `nomad job run myapp.nomad`
 - `nomad status` is equal to `nomad job status`



DEMO

Using the Nomad CLI





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Nomad UI



Nomad UI

- Provides a simple interface to interact with Nomad
- View Nomad infrastructure, jobs, evaluations, allocations, variables, and more.

The screenshot displays the Nomad UI interface. At the top, there's a dark green header with the Nomad logo and a search bar labeled "Jump to" with a slash icon. Below the header, the "Jobs" section is active, indicated by a green bar. On the left sidebar, navigation links include "Jobs" (highlighted), "Storage", "Variables", "CLUSTER" (with sub-links "Clients", "Servers", "Topology"), "DEBUGGING", and "Evaluations". The main content area shows a table of jobs with columns: Name, Status, Type, Priority, Groups, and Summary. Four jobs are listed: "example", "bryan", "vault", and "tetris", all with a "RUNNING" status. Each job has a green progress bar in the Summary column. Above the table is a search bar "Search jobs..." and filter buttons for "Type", "Status", "Datacenter", and "Prefix", along with a "Run Job" button. At the bottom, there's a "Per page" dropdown set to 25 and a pagination indicator "1 - 4 of 4".

| Name | Status | Type | Priority | Groups | Summary |
|---------|---------|---------|----------|--------|-------------|
| example | RUNNING | service | 50 | 1 | <div></div> |
| bryan | RUNNING | service | 50 | 1 | <div></div> |
| vault | RUNNING | service | 50 | 1 | <div></div> |
| tetris | RUNNING | service | 50 | 1 | <div></div> |

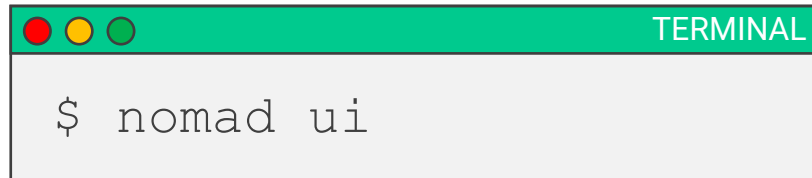


Nomad UI

Access the UI by hitting the URL (assuming default port):

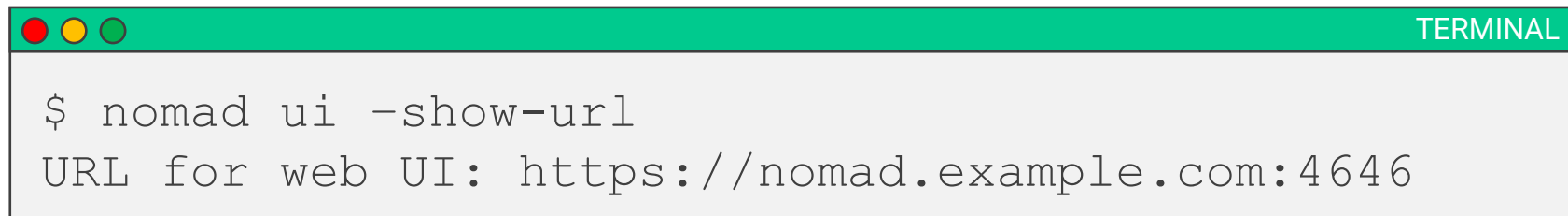
- <https://nomad.example.com:4646>

You can also get to the URL by using the **nomad ui** command:

A terminal window with a green title bar containing three colored circles (red, yellow, green) and the word "TERMINAL". The terminal has a light gray background and shows the command "\$ nomad ui" in a monospaced font.

```
$ nomad ui
```

Print the Nomad UI URL without opening the browser

A terminal window with a green title bar containing three colored circles (red, yellow, green) and the word "TERMINAL". The terminal has a light gray background and shows the command "\$ nomad ui -show-url" followed by its output "URL for web UI: https://nomad.example.com:4646" in a monospaced font.

```
$ nomad ui -show-url
URL for web UI: https://nomad.example.com:4646
```



DEMO

Using the Nomad UI



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Nomad offers a fully-featured API to configure and work with your Nomad infrastructure

- In fact, the CLI and UI invokes the proper API when using them

The API address is determined by the http address and port in the agent configuration file

- By default, the API uses port **4646**



Nomad API



- All API routes are prefixed with **v1/**
- Additional information may be passed as a query parameter

`https://nomad.example.com:4646/v1/jobs?namespace=prod`

Diagram illustrating the components of the Nomad API URL:

- URL of Your Nomad Cluster:** `https://nomad.example.com:4646/`
- API Prefix:** `v1/`
- Endpoint You Need to Use:** `jobs`
- Targeted Namespace:** `?namespace=prod`



Nomad API

- If ACLs are enabled, a Nomad token must be provided when invoking an API
- Authentication is done using the **X-Nomad-Token** or **Authorization: Bearer** header

```
TERMINAL
$ curl \
  --header "X-Nomad-Token: 4a8be0a9-459c-6598-ac8b-d80f26a6e8f0" \
  --request POST
  --data @myapp.json
  https://nomad.example.com:4646/v1/jobs
```

