

Using the Infinispan Command Line Interface

Table of Contents

1. Getting Started with the Infinispan CLI	1
1.1. Adding Infinispan Credentials	1
1.2. Connecting to Infinispan Servers	1
1.3. Navigating CLI Resources	2
1.3.1. CLI Resources	3
1.4. Shutting Down Infinispan Servers	4
2. Performing Cache Operations with the Infinispan CLI	6
2.1. Creating Caches with the Infinispan Command Line Interface (CLI)	6
2.1.1. XML Configuration	7
2.1.2. JSON Configuration	7
2.2. Adding Cache Entries	7
2.3. Clearing Caches and Deleting Entries	8
2.4. Deleting Caches	8
3. Performing Batch Operations	10
3.1. Performing Batch Operations with Files	10
3.2. Performing Batch Operations Interactively	11
4. Configuring the Infinispan CLI	13
4.1. Configuring Startup Properties	13
4.2. Trusting Infinispan Server Connections	13
4.3. Infinispan CLI Configuration Properties	14
5. Working with Counters	16
5.1. Creating Counters	16
5.2. Adding Deltas to Counters	17
6. Querying Caches with Protobuf Metadata	19
6.1. Configuring Media Types	19
6.2. Registering Protobuf Schemas	20
6.3. Querying Caches with Protobuf Schemas	21
7. Performing Cross-Site Replication Operations	25
7.1. Bringing Backup Locations Offline and Online	25
7.2. Pushing State to Backup Locations	25
8. Backing Up and Restoring Infinispan Clusters	27
8.1. Backing Up Infinispan Clusters	27
8.2. Restoring Infinispan Clusters from Backup Archives	28
9. Command Reference	30
9.1. ADD(1)	30
9.1.1. NAME	30
9.1.2. SYNOPSIS	30
9.1.3. OPTIONS	30

9.1.4. EXAMPLES	30
9.1.5. SEE ALSO	30
9.2. BACKUP(1)	30
9.2.1. NAME	30
9.2.2. SYNOPSIS	31
9.2.3. BACKUP CREATE OPTIONS	31
9.2.4. BACKUP GET OPTIONS	31
9.2.5. BACKUP RESTORE OPTIONS	31
9.2.6. EXAMPLES	32
9.2.7. SEE ALSO	33
9.3. CACHE(1)	33
9.3.1. NAME	33
9.3.2. SYNOPSIS	33
9.3.3. EXAMPLE	33
9.3.4. SEE ALSO	33
9.4. CAS(1)	33
9.4.1. NAME	33
9.4.2. SYNOPSIS	33
9.4.3. OPTIONS	33
9.4.4. EXAMPLE	33
9.4.5. SEE ALSO	34
9.5. CD(1)	34
9.5.1. NAME	34
9.5.2. DESCRIPTION	34
9.5.3. SYNOPSIS	34
9.5.4. EXAMPLE	34
9.5.5. SEE ALSO	34
9.6. CLEARCACHE(1)	34
9.6.1. NAME	34
9.6.2. SYNOPSIS	34
9.6.3. EXAMPLES	34
9.6.4. SEE ALSO	34
9.7. CONFIG(1)	35
9.7.1. NAME	35
9.7.2. SYNOPSIS	35
9.7.3. DESCRIPTION	35
9.7.4. COMMAND SYNOPSIS	35
9.7.5. COMMON OPTIONS	35
9.7.6. PROPERTIES	35
9.8. CONNECT(1)	36
9.8.1. NAME	36

9.8.2. DESCRIPTION	36
9.8.3. SYNOPSIS	36
9.8.4. OPTIONS	36
9.8.5. EXAMPLE	36
9.8.6. SEE ALSO	36
9.9. CONTAINER(1)	36
9.9.1. NAME	37
9.9.2. SYNOPSIS	37
9.9.3. EXAMPLE	37
9.9.4. SEE ALSO	37
9.10. COUNTER(1)	37
9.10.1. NAME	37
9.10.2. SYNOPSIS	37
9.10.3. EXAMPLE	37
9.10.4. SEE ALSO	37
9.11. CREATE(1)	37
9.11.1. NAME	37
9.11.2. SYNOPSIS	37
9.11.3. CREATE CACHE OPTIONS	38
9.11.4. CREATE COUNTER OPTIONS	38
9.11.5. EXAMPLES	38
9.11.6. SEE ALSO	38
9.12. DESCRIBE(1)	38
9.12.1. NAME	38
9.12.2. SYNOPSIS	39
9.12.3. EXAMPLES	39
9.12.4. SEE ALSO	39
9.13. DISCONNECT(1)	39
9.13.1. NAME	39
9.13.2. SYNOPSIS	39
9.13.3. EXAMPLE	39
9.13.4. SEE ALSO	39
9.14. DROP(1)	39
9.14.1. NAME	39
9.14.2. SYNOPSIS	40
9.14.3. EXAMPLES	40
9.14.4. SEE ALSO	40
9.15. ENCODING(1)	40
9.15.1. NAME	40
9.15.2. DESCRIPTION	40
9.15.3. SYNOPSIS	40

9.15.4. EXAMPLE	40
9.15.5. SEE ALSO	40
9.16. GET(1)	41
9.16.1. NAME	41
9.16.2. SYNOPSIS	41
9.16.3. OPTIONS	41
9.16.4. EXAMPLE	41
9.16.5. SEE ALSO	41
9.17. HELP(1)	41
9.17.1. NAME	41
9.17.2. SYNOPSIS	41
9.17.3. EXAMPLE	41
9.17.4. SEE ALSO	41
9.18. LOGGING(1)	41
9.18.1. NAME	42
9.18.2. SYNOPSIS	42
9.18.3. LOGGING SET OPTIONS	42
9.18.4. EXAMPLES	42
9.19. LS(1)	42
9.19.1. NAME	42
9.19.2. SYNOPSIS	42
9.19.3. EXAMPLES	42
9.19.4. SEE ALSO	43
9.20. MIGRATE(1)	43
9.20.1. NAME	43
9.20.2. SYNOPSIS	43
9.20.3. DESCRIPTION	43
9.20.4. COMMAND SYNOPSIS	43
9.20.5. COMMON OPTIONS	43
9.20.6. CLUSTER SYNCHRONIZE OPTIONS	43
9.20.7. CLUSTER DISCONNECT OPTIONS	44
9.21. PATCH(1)	44
9.21.1. NAME	44
9.21.2. DESCRIPTION	44
9.21.3. SYNOPSIS	44
9.21.4. PATCH LIST OPTIONS	44
9.21.5. PATCH INSTALL OPTIONS	44
9.21.6. PATCH DESCRIBE OPTIONS	45
9.21.7. PATCH ROLLBACK OPTIONS	45
9.21.8. PATCH CREATE OPTIONS	45
9.21.9. EXAMPLES	45

9.22. PUT(1)	45
9.22.1. NAME	45
9.22.2. DESCRIPTION	45
9.22.3. SYNOPSIS	46
9.22.4. OPTIONS	46
9.22.5. EXAMPLES	46
9.22.6. SEE ALSO	46
9.23. QUERY(1)	46
9.23.1. NAME	46
9.23.2. SYNOPSIS	47
9.23.3. OPTIONS	47
9.23.4. EXAMPLES	47
9.23.5. SEE ALSO	47
9.24. QUIT(1)	47
9.24.1. NAME	47
9.24.2. SYNOPSIS	47
9.24.3. EXAMPLE	47
9.24.4. SEE ALSO	47
9.25. REMOVE(1)	48
9.25.1. NAME	48
9.25.2. SYNOPSIS	48
9.25.3. OPTIONS	48
9.25.4. EXAMPLE	48
9.25.5. SEE ALSO	48
9.26. RESET(1)	48
9.26.1. NAME	48
9.26.2. SYNOPSIS	48
9.26.3. EXAMPLE	48
9.26.4. SEE ALSO	48
9.27. SCHEMA(1)	48
9.27.1. NAME	49
9.27.2. SYNOPSIS	49
9.27.3. OPTIONS	49
9.27.4. EXAMPLE	49
9.27.5. SEE ALSO	49
9.28. SHUTDOWN(1)	49
9.28.1. NAME	49
9.28.2. SYNOPSIS	49
9.28.3. EXAMPLES	49
9.28.4. SEE ALSO	49
9.29. SITE(1)	50

9.29.1. NAME	50
9.29.2. SYNOPSIS	50
9.29.3. OPTIONS	50
9.29.4. EXAMPLES	50
9.30. STATS(1)	51
9.30.1. NAME	51
9.30.2. SYNOPSIS	51
9.30.3. EXAMPLES	51
9.30.4. SEE ALSO	51
9.31. TASK(1)	51
9.31.1. NAME	51
9.31.2. SYNOPSIS	51
9.31.3. EXAMPLES	51
9.31.4. OPTIONS	52
9.31.5. SEE ALSO	52
9.32. USER(1)	52
9.32.1. NAME	52
9.32.2. SYNOPSIS	52
9.32.3. DESCRIPTION	52
9.32.4. COMMAND SYNOPSIS	52
9.32.5. COMMON OPTIONS	53
9.32.6. USER CREATE/MODIFY OPTIONS	54
9.32.7. USER LS OPTIONS	54
9.32.8. USER ENCRYPT-ALL OPTIONS	54
9.33. VERSION(1)	54
9.33.1. NAME	54
9.33.2. SYNOPSIS	54
9.33.3. EXAMPLE	54
9.33.4. SEE ALSO	54

Chapter 1. Getting Started with the Infinispan CLI

The command line interface (CLI) lets you remotely connect to Infinispan servers to access data and perform administrative functions.

1.1. Adding Infinispan Credentials

Infinispan Server provides a default property realm that restricts access to authenticated users only. Use the Infinispan CLI to add credentials.

Procedure

1. Open a terminal in `$ISP_HOME`.
2. Define credentials with the `user` command as in the following examples:
 - Create a new user named "myuser" and specify a password:

Linux

```
$ bin/cli.sh user create myuser -p "qwer1234!"
```

Microsoft Windows

```
$ bin\cli.bat user create myuser -p "qwer1234!"
```

- Create a new user that belongs to the "supervisor", "reader", and "writer" groups if you use security authorization:

Linux

```
$ bin/cli.sh user create myuser -p "qwer1234!" -g supervisor,reader,writer
```

Microsoft Windows

```
$ bin\cli.bat user create myuser -p "qwer1234!" -g supervisor,reader,writer
```

1.2. Connecting to Infinispan Servers

Establish CLI connections to Infinispan.

Prerequisites

Add user credentials and have at least one running Infinispan server instance.

Procedure

1. Open a terminal in `$ISP_HOME`.

2. Start the CLI.

- **Linux:**

```
$ bin/cli.sh
```

- **Microsoft Windows:**

```
$ bin\cli.bat
```

3. Run the **connect** command and enter your username and password when prompted.

- Infinispan Server on the default port of **11222**:

```
[disconnected]> connect
```

- Infinispan Server with a port offset of **100**:

```
[disconnected]> connect 127.0.0.1:11322
```

1.3. Navigating CLI Resources

The Infinispan CLI exposes a navigable tree that allows you to list, describe, and manipulate Infinispan cluster resources.



Press the tab key to display available commands and options. Use the **-h** option to display help text.

When you connect to a Infinispan cluster, it opens in the context of the default cache container.

```
[//containers/default]>
```

- Use **ls** to list resources.

```
[//containers/default]> ls  
caches  
counters  
configurations  
schemas  
tasks
```

- Use **cd** to navigate the resource tree.

```
[//containers/default]> cd caches
```

- Use **describe** to view information about resources.

```
[//containers/default]> describe
{
  "name" : "default",
  "version" : "xx.x.x-FINAL",
  "cluster_name" : "cluster",
  "coordinator" : true,
  "cache_configuration_names" : [ "org.infinispan.REPL_ASYNC", "___protobuf_metadata",
"org.infinispan.DIST_SYNC", "org.infinispan.LOCAL",
"org.infinispan.INVALIDATION_SYNC", "org.infinispan.REPL_SYNC",
"org.infinispan.SCATTERED_SYNC", "org.infinispan.INVALIDATION_ASYNC",
"org.infinispan.DIST_ASYNC" ],
  "physical_addresses" : "[192.0.2.0:7800]",
  "coordinator_address" : "<hostname>",
  "cache_manager_status" : "RUNNING",
  "created_cache_count" : "1",
  "running_cache_count" : "1",
  "node_address" : "<hostname>",
  "cluster_members" : [ "<hostname1>", "<hostname2>" ],
  "cluster_members_physical_addresses" : [ "192.0.2.0:7800", "192.0.2.0:7801" ],
  "cluster_size" : 2,
  "defined_caches" : [ {
    "name" : "mycache",
    "started" : true
  }, {
    "name" : "___protobuf_metadata",
    "started" : true
  } ]
}
```

1.3.1. CLI Resources

The Infinispan CLI exposes different resources to:

- create, modify, and manage local or clustered caches.
- perform administrative operations for Infinispan clusters.

Cache Resources

```
[//containers/default]> ls
caches
counters
configurations
schemas
```

cache

Infinispan cache instances. The default cache container is empty. Use the CLI to create caches from templates or `infinispan.xml` files.

counters

Strong or **Weak** counters that record the count of objects.

configurations

Infinispan configurations.

schemas

Protocol Buffers (Protobuf) schemas that structure data in the cache.

tasks

Remote tasks creating and managing Infinispan cache definitions.

Cluster Resources

```
[hostname@cluster/]> ls
containers
cluster
server
```

containers

Cache containers on the Infinispan cluster.

cluster

Lists Infinispan servers joined to the cluster.

server

Resources for managing and monitoring Infinispan servers.

1.4. Shutting Down Infinispan Servers

Gracefully shut down running Infinispan servers to passivate all entries to disk and persist state.

Procedure

1. Create a CLI connection to Infinispan.
2. Do one of the following:
 - Stop individual servers with the `shutdown server` command:

```
[//containers/default]> shutdown server $hostname
```

- Stop all nodes in the cluster with the `shutdown cluster` command:

```
[//containers/default]> shutdown cluster
```

Verification

Check the server logs for the following messages:

```
ISPN080002: Infinispan Server stopping
ISPN000080: Disconnecting JGroups channel cluster
ISPN000390: Persisted state, version=<$version> timestamp=YYYY-MM-DDTHH:MM:SS
ISPN080003: Infinispan Server stopped
```

Chapter 2. Performing Cache Operations with the Infinispan CLI

The command line interface (CLI) lets you remotely connect to Infinispan servers to access data and perform administrative functions.

2.1. Creating Caches with the Infinispan Command Line Interface (CLI)

Use the Infinispan CLI to add caches from templates or configuration files in XML or JSON format.

Prerequisites

Add Infinispan credentials and start at least one Infinispan server instance.

Procedure

1. Create a CLI connection to Infinispan.
2. Add cache definitions with the `create cache` command.
 - Add a cache definition from an XML or JSON file with the `--file` option.

```
[//containers/default]> create cache --file=configuration.xml mycache
```

- Add a cache definition from a template with the `--template` option.

```
[//containers/default]> create cache --template=org.infinispan.DIST_SYNC mycache
```



Press the tab key after the `--template=` argument to list available cache templates.

3. Verify the cache exists with the `ls` command.

```
[//containers/default]> ls caches  
mycache
```

4. Retrieve the cache configuration with the `describe` command.

```
[//containers/default]> describe caches/mycache
```

Reference

- [Creating Infinispan CLI Connections](#)
- [Performing Cache Operations with the Infinispan CLI](#)

2.1.1. XML Configuration

Infinispan configuration in XML format must conform to the schema and include:

- `<infinispan>` root element.
- `<cache-container>` definition.

Example XML Configuration

```
<infinispan>
  <cache-container>
    <distributed-cache name="myCache" mode="SYNC">
      <encoding media-type="application/x-protostream"/>
      <memory max-count="1000000" when-full="REMOVE"/>
    </distributed-cache>
  </cache-container>
</infinispan>
```

2.1.2. JSON Configuration

Infinispan configuration in JSON format:

- Requires the cache definition only.
- Must follow the structure of an XML configuration.
 - XML elements become JSON objects.
 - XML attributes become JSON fields.

Example JSON Configuration

```
{
  "distributed-cache": {
    "name": "myCache",
    "mode": "SYNC",
    "encoding": {
      "media-type": "application/x-protostream"
    },
    "memory": {
      "max-count": 1000000,
      "when-full": "REMOVE"
    }
  }
}
```

2.2. Adding Cache Entries

Create **key:value** pair entries in the data container.

Prerequisites

Create a Infinispan cache that can store your data.

Procedure

1. Create a CLI connection to Infinispan.
2. Add entries into your cache as follows:
 - Use the **put** command from the context of a cache:

```
[//containers/default/caches/mycache]> put hello world
```

- Use the **--cache=** with the **put** command:

```
[//containers/default]> put --cache=mycache hello world
```

3. Use the **get** command to verify entries.

```
[//containers/default/caches/mycache]> get hello  
world
```

2.3. Clearing Caches and Deleting Entries

Remove data from caches with the Infinispan CLI.

Procedure

1. Create a CLI connection to Infinispan.
2. Do one of the following:
 - Delete all entries with the **clearcache** command.

```
[//containers/default]> clearcache mycache
```

- Remove specific entries with the **remove** command.

```
[//containers/default]> remove --cache=mycache hello
```

2.4. Deleting Caches

Drop caches to remove them and delete all data they contain.

Procedure

1. Create a CLI connection to Infinispan.

2. Remove caches with the **drop** command.

```
[//containers/default]> drop cache mycache
```


Chapter 3. Performing Batch Operations

Process operations in groups, either interactively or using batch files.

Prerequisites

- A running Infinispan cluster.

3.1. Performing Batch Operations with Files

Create files that contain a set of operations and then pass them to the Infinispan CLI.

Procedure

1. Create a file that contains a set of operations.

For example, create a file named `batch` that creates a cache named `mybatch`, adds two entries to the cache, and disconnects from the CLI.

```
$ cat > batch<<EOF
create cache --template=org.infinispan.DIST_SYNC mybatch
put --cache=mybatch hello world
put --cache=mybatch hola mundo
disconnect
EOF
```

2. Run the CLI and specify the file as input.

```
$ bin/cli.sh -c localhost:11222 -f batch
```

3. Create a new Infinispan CLI connection and verify `mybatch`.

```
[//containers/default]> ls caches
___protobuf_metadata
mybatch
[//containers/default]> ls caches/mybatch
hola
hello
[//containers/default]> disconnect
[disconnected]>
```



CLI batch files support system property expansion. Strings that use the `${property}` format are replaced with the value of the `property` system property.

3.2. Performing Batch Operations Interactively

Use the standard input stream, **stdin**, to perform batch operations interactively.

Procedure

1. Start the Infinispan CLI in interactive mode.

```
$ bin/cli.sh -c localhost:11222 -f -
```



If you do not use the **-c** flag, you must run the **connect** command.

```
$ bin/cli.sh -f -  
connect
```

2. Run batch operations, for example:

```
create cache --template=org.infinispan.DIST_SYNC mybatch  
put --cache=mybatch hello world  
put --cache=mybatch hola mundo  
disconnect  
quit
```



Use **echo** to add commands in interactive mode.

The following example shows how to use **echo describe** to get cluster information:

```
$ echo describe|bin/cli.sh -c localhost:11222 -f -
{
  "name" : "default",
  "version" : "10.0.0-SNAPSHOT",
  "coordinator" : false,
  "cache_configuration_names" : [ "org.infinispan.REPL_ASYNC", "___protobuf_metadata",
"org.infinispan.DIST_SYNC", "qcache", "org.infinispan.LOCAL", "dist_cache_01",
"org.infinispan.INVALIDATION_SYNC", "org.infinispan.REPL_SYNC",
"org.infinispan.SCATTERED_SYNC", "mycache", "org.infinispan.INVALIDATION_ASYNC",
"mybatch", "org.infinispan.DIST_ASYNC" ],
  "cluster_name" : "cluster",
  "physical_addresses" : "[192.168.1.7:7800]",
  "coordinator_address" : "thundercat-34689",
  "cache_manager_status" : "RUNNING",
  "created_cache_count" : "4",
  "running_cache_count" : "4",
  "node_address" : "thundercat-47082",
  "cluster_members" : [ "thundercat-34689", "thundercat-47082" ],
  "cluster_members_physical_addresses" : [ "10.36.118.25:7801", "192.168.1.7:7800" ],
  "cluster_size" : 2,
  "defined_caches" : [ {
    "name" : "___protobuf_metadata",
    "started" : true
  }, {
    "name" : "mybatch",
    "started" : true
  } ]
}
```

Chapter 4. Configuring the Infinispan CLI

Define configuration properties for the Infinispan CLI.

4.1. Configuring Startup Properties

Configure Infinispan CLI to automatically connect to specific URLs on startup and run batch files.

Prerequisites

- Add Infinispan credentials.
- Optionally create CLI batch files to run at startup.

Procedure

1. Specify a hostname and port to which the CLI automatically connects.

For example, connect to the default server location when you start the CLI:

```
$ bin/cli.sh config set autoconnect-url http://127.0.0.1:11222
```

2. If you want to run a batch file when you start the CLI, specify the path to it as follows:

```
$ bin/cli.sh config set autoexec /path/to/batch/file
```

3. Verify your CLI configuration.

```
$ bin/cli.sh config get autoconnect-url
autoconnect-url=http://127.0.0.1:11222

$ bin/cli.sh config get autoexec
autoexec=/path/to/batch/file
```

4. Start the Infinispan CLI and enter your credentials when prompted.

```
$ bin/cli.sh

[ //containers/default]>
```

Reference

[Performing Batch Operations](#)

4.2. Trusting Infinispan Server Connections

Secure Infinispan CLI connections to Infinispan Server with SSL/TLS certificates. If you create a key

store as an SSL identity for Infinispan Server, the CLI can validate server certificates to verify the identity.

Prerequisites

- Set up an SSL identity for Infinispan Server.
- Add Infinispan credentials.

Procedure

1. Specify the location of the server key store, as in the following example:

```
$ bin/cli.sh config set truststore /home/user/my-trust-store.jks
```

2. Define the key store password, if necessary, as follows:

```
$ bin/cli.sh config set truststore-password secret
```

3. Verify your CLI configuration.

```
$ bin/cli.sh config get truststore
truststore=/home/user/my-trust-store.jks

$ bin/cli.sh config get truststore-password
truststore-password=secret
```

Reference

[Setting Up SSL Identities for Infinispan Server](#)

4.3. Infinispan CLI Configuration Properties

Property	Description
<code>autoconnect-url</code>	Specifies the URL of a Infinispan server to connect to on startup.
<code>autoexec</code>	Defines the path to a CLI batch file that runs on startup. If an <code>autoconnect-url</code> property is specified, a connection to the server is established before the batch file runs.
<code>trustall</code>	Configures the CLI to trust all server certificates. Boolean value. Set to <code>true</code> to trust all certificates and bypass certificate validation.
<code>truststore</code>	Defines the path to the server key store. The CLI uses this key store to validate Infinispan Server identity.

Property	Description
<code>truststore_password</code>	Specifies a password for the key store, if required.

Persistent configuration

Infinispan CLI stores configuration in the following OS-specific directories:

- Linux/Unix: `$HOME/.config/{brandshortname}`
- Windows: `$APPDATA/Sun/Java/{brandshortname}`
- OS X: `$HOME/Library/Java/{brandshortname}`

This directory contains the following files:

- `cli.properties`: CLI configuration properties.
- `aliases`: custom CLI aliases.
- `history`: CLI history.

Chapter 5. Working with Counters

Counters provide atomic increment and decrement operations that record the count of objects.

Prerequisites

- Start the Infinispan CLI.
- Connect to a running Infinispan cluster.

5.1. Creating Counters

Create strong and weak counters with the Infinispan CLI.

Procedure

1. Create a CLI connection to Infinispan.
2. Run the `create counter` command with the appropriate arguments.
 - a. Create `my-weak-counter`.

```
[//containers/default]> create counter --concurrency-level=1 --initial-value=5 -  
-storage=PERSISTENT --type=weak my-weak-counter
```

- b. Create `my-strong-counter`.

```
[//containers/default]> create counter --initial-value=3 --storage=PERSISTENT --  
type=strong my-strong-counter
```

3. List available counters.

```
[//containers/default]> ls counters  
my-strong-counter  
my-weak-counter
```

4. Verify counter configurations.
 - a. Describe `my-weak-counter`.

```
[//containers/default]> describe counters/my-weak-counter

{
  "weak-counter":{
    "initial-value":5,
    "storage":"PERSISTENT",
    "concurrency-level":1
  }
}
```

b. Describe **my-strong-counter**.

```
[//containers/default]> describe counters/my-strong-counter

{
  "strong-counter":{
    "initial-value":3,
    "storage":"PERSISTENT",
    "upper-bound":5
  }
}
```

5.2. Adding Deltas to Counters

Increment or decrement counters with arbitrary values.

Procedure

1. Select a counter.

```
[//containers/default]> counter my-weak-counter
```

2. List the current count.

```
[//containers/default/counters/my-weak-counter]> ls
5
```

3. Increment the counter value by **2**.

```
[//containers/default/counters/my-weak-counter]> add --delta=2
```

4. Decrement the counter value by **-4**.


```
[//containers/default/counters/my-weak-counter]> add --delta=-4
```



Strong counters return values after the operation is applied. Use `--quiet=true` to hide the return value.

For example, `my-strong-counter]> add --delta=3 --quiet=true`.

Weak counters return empty responses.

Chapter 6. Querying Caches with Protobuf Metadata

Infinispan supports using Protocol Buffers (Protobuf) to structure data in the cache so that you can query it.

Prerequisites

- Start the Infinispan CLI.
- Connect to a running Infinispan cluster.

6.1. Configuring Media Types

Encode cache entries with different media types to store data in a format that best suits your requirements.

For example, the following procedure shows you how to configure the `application/x-protostream` media type.

Procedure

1. Create a Infinispan configuration file that adds a distributed cache named `qcache` and configures the media type, for example:

```
<infinispan>
  <cache-container>
    <distributed-cache name="qcache">
      <encoding>
        <key media-type="application/x-protostream"/>
        <value media-type="application/x-protostream"/>
      </encoding>
    </distributed-cache>
  </cache-container>
</infinispan>
```

2. Create `qcache` from `pcache.xml` with the `--file=` option.

```
[//containers/default]> create cache --file=pcache.xml pcache
```

3. Verify `pcache`.

```

[/containers/default]> ls caches
pcache
__protobuf_metadata
[/containers/default]> describe caches/pcache
{
  "distributed-cache" : {
    "mode" : "SYNC",
    "encoding" : {
      "key" : {
        "media-type" : "application/x-protostream"
      },
      "value" : {
        "media-type" : "application/x-protostream"
      }
    },
    "transaction" : {
      "mode" : "NONE"
    }
  }
}

```

4. Add an entry to **pcache** and check the encoding.

```

[/containers/default]> put --cache=pcache good morning
[/containers/default]> cd caches/pcache
[/containers/default/caches/pcache]> get good
{
  "_type" : "string",
  "_value" : "morning"
}

```

6.2. Registering Protobuf Schemas

Protobuf schemas contain data structures known as messages in **.proto** definition files.

Procedure

1. Create a schema file named **person.proto** with the following messages:

```

package org.infinispan.rest.search.entity;

message Address {
    required string street = 1;
    required string postCode = 2;
}

message PhoneNumber {
    required string number = 1;
}

message Person {
    optional int32 id = 1;
    required string name = 2;
    required string surname = 3;
    optional Address address = 4;
    repeated PhoneNumber phoneNumbers = 5;
    optional uint32 age = 6;
    enum Gender {
        MALE = 0;
        FEMALE = 1;
    }

    optional Gender gender = 7;
}

```

2. Register `person.proto`.

```
[//containers/default]> schema --upload=person.proto person.proto
```

3. Verify `person.proto`.

```

[//containers/default]> cd caches/___protobuf_metadata
[//containers/default/caches/___protobuf_metadata]> ls
person.proto
[//containers/default/caches/___protobuf_metadata]> get person.proto

```

6.3. Querying Caches with Protobuf Schemas

Infinispan automatically converts JSON to Protobuf so that you can read and write cache entries in JSON format and use Protobuf schemas to query them.

For example, consider the following JSON documents:

lukecage.json

```
{
  "_type": "org.infinispan.rest.search.entity.Person",
  "id": 2,
  "name": "Luke",
  "surname": "Cage",
  "gender": "MALE",
  "address": {"street": "38th St", "postCode": "NY 11221"},
  "phoneNumbers": [{"number": 4444}, {"number": 5555}]
}
```

jessicajones.json

```
{
  "_type": "org.infinispan.rest.search.entity.Person",
  "id": 1,
  "name": "Jessica",
  "surname": "Jones",
  "gender": "FEMALE",
  "address": {"street": "46th St", "postCode": "NY 10036"},
  "phoneNumbers": [{"number": 1111}, {"number": 2222}, {"number": 3333}]
}
```

matthewmurdock.json

```
{
  "_type": "org.infinispan.rest.search.entity.Person",
  "id": 3,
  "name": "Matthew",
  "surname": "Murdock",
  "gender": "MALE",
  "address": {"street": "57th St", "postCode": "NY 10019"},
  "phoneNumbers": []
}
```

Each of the preceding JSON documents contains:

- A `_type` field that identifies the Protobuf message to which the JSON document corresponds.
- Several fields that correspond to datatypes in the `person.proto` schema.

Procedure

1. Navigate to the `pcache` cache.

```
[//containers/default/caches]> cd pcache
```

2. Add each JSON document as an entry to the cache, for example:

```
[//containers/default/caches/pcache]> put --encoding=application/json  
--file=jessicajones.json jessicajones  
[//containers/default/caches/pcache]> put --encoding=application/json  
--file=matthewmurdock.json matthewmurdock  
[//containers/default/caches/pcache]> put --encoding=application/json  
--file=lukecage.json lukecage
```

3. Verify that the entries exist.

```
[//containers/default/caches/pcache]> ls  
lukecage  
matthewmurdock  
jessicajones
```

4. Query the cache to return entries from the Protobuf **Person** entity where the gender datatype is **MALE**.

```

[//containers/default/caches/pcache]> query "from
org.infinispan.rest.search.entity.Person p where p.gender = 'MALE'"
{
  "total_results" : 2,
  "hits" : [ {
    "hit" : {
      "_type" : "org.infinispan.rest.search.entity.Person",
      "id" : 2,
      "name" : "Luke",
      "surname" : "Cage",
      "gender" : "MALE",
      "address" : {
        "street" : "38th St",
        "postCode" : "NY 11221"
      },
      "phoneNumbers" : [ {
        "number" : "4444"
      }, {
        "number" : "5555"
      } ]
    }
  }, {
    "hit" : {
      "_type" : "org.infinispan.rest.search.entity.Person",
      "id" : 3,
      "name" : "Matthew",
      "surname" : "Murdock",
      "gender" : "MALE",
      "address" : {
        "street" : "57th St",
        "postCode" : "NY 10019"
      }
    }
  } ]
}

```

Chapter 7. Performing Cross-Site Replication Operations

Infinispan clusters running in different locations can discover and communicate with each other to backup data.

Prerequisites

- Start the Infinispan CLI.
- Connect to a running Infinispan cluster.

7.1. Bringing Backup Locations Offline and Online

Take backup locations offline manually and bring them back online.

Procedure

1. Create a CLI connection to Infinispan.
2. Check if backup locations are online or offline with the `site status` command:

```
//containers/default]> site status --cache=cacheName --site=NYC
```



`--site` is an optional argument. If not set, the CLI returns all backup locations.

3. Manage backup locations as follows:
 - Bring backup locations online with the `bring-online` command:

```
//containers/default]> site bring-online --cache=customers --site=NYC
```

- Take backup locations offline with the `take-offline` command:

```
//containers/default]> site take-offline --cache=customers --site=NYC
```

For more information and examples, run the `help site` command.

7.2. Pushing State to Backup Locations

Transfer cache state to remote backup locations.

Procedure

1. Create a CLI connection to Infinispan.
2. Use the `site` command to push state transfer, as in the following example:


```
//containers/default]> site push-site-state --cache=cacheName --site=NYC
```

For more information and examples, run the `help site` command.

Chapter 8. Backing Up and Restoring Infinispan Clusters

Create archives of Infinispan resources that include cached entries, cache configurations, Protobuf schemas, and server scripts. You can then use the backup archives to restore Infinispan Server clusters after a restart or migration.

Prerequisites

- Start the Infinispan CLI.
- Connect to a running Infinispan cluster.

8.1. Backing Up Infinispan Clusters

Create backup archives in **.zip** format that you can download or store on Infinispan Server.

Prerequisites

Backup archives should reflect the most recent cluster state. For this reason you should ensure the cluster is no longer accepting write requests before you create backup archives.

Procedure

1. Create a CLI connection to Infinispan.
2. Run the **backup create** command with the appropriate options, for example:
 - Back up all resources with an automatically generated name.

```
[//containers/default]> backup create
```

- Back up all resources in a backup archive named **example-backup**.

```
[//containers/default]> backup create -n example-backup
```

- Back up all resources to the **/some/server/dir** path on the server.

```
[//containers/default]> backup create -d /some/server/dir
```

- Back up only caches and cache configurations.

```
[//containers/default]> backup create --caches=* --cache-configs=*
```

- Back up named Protobuf schemas only.

```
[//containers/default]> backup create --proto-schemas=schema1,schema2
```

3. List available backup archives on the server.

```
[//containers/default]> backup ls
```

4. Download the **example-backup** archive from the server.

If the backup operation is still in progress, the command waits for it to complete.

```
[//containers/default]> backup get example-backup
```

5. Optionally delete the **example-backup** archive from the server.

```
[//containers/default]> backup delete example-backup
```

8.2. Restoring Infinispan Clusters from Backup Archives

Apply the content of backup archives to Infinispan clusters to restore them to the backed up state.

Prerequisites

- Create a backup archive that is either local to the Infinispan CLI or stored on Infinispan Server.
- Ensure that the target container matches the container name in the backup archive. You cannot restore backups if the container names do not match.

Procedure

1. Create a CLI connection to Infinispan.
2. Run the **backup restore** command with the appropriate options.
 - Restore all content from a backup archive accessible on the server.

```
[//containers/default]> backup restore /some/path/on/the/server
```

- Restore all content from a local backup archive.

```
[//containers/default]> backup restore -u /some/local/path
```

- Restore only cache content from a backup archive on the server.

```
[//containers/default]> backup restore /some/path/on/the/server --caches=*
```

Chapter 9. Command Reference

Review manual pages for Infinispan CLI commands.



Use `help` command to access manual pages directly from your CLI session.

For example, to view the manual page for the `get` command do the following:

```
$ help get
```

9.1. ADD(1)

9.1.1. NAME

`add` - increments and decrements counters with arbitrary values.

9.1.2. SYNOPSIS

```
add ['OPTIONS'] ['COUNTER_NAME']
```

9.1.3. OPTIONS

`--delta='nnn'`

Sets a delta to increment or decrement the counter value. Defaults to `1`.

`-q, --quiet='[true|false]'`

Hides return values for strong counters. The default is `false`.

9.1.4. EXAMPLES

```
add --delta=10 cnt_a
```

Increments the value of `cnt_a` by `10`.

```
add --delta=-5 cnt_a
```

Decrements the value of `cnt_a` by `5`.

9.1.5. SEE ALSO

`cas(1)`, `reset(1)`

9.2. BACKUP(1)

9.2.1. NAME

`backup` - manage container backup creation and restoration.

9.2.2. SYNOPSIS

backup create ['OPTIONS']

backup delete ['OPTIONS'] **BACKUP_NAME**

backup get ['OPTIONS'] **BACKUP_NAME**

backup ls

backup restore ['OPTIONS'] **BACKUP_PATH**

9.2.3. BACKUP CREATE OPTIONS

-d, --dir='PATH'

Specifies a directory on the server to create and store the backup archive.

-n, --name='NAME'

Defines a name for the backup archive.

--caches='cache1,cache2,...'

Lists caches to back up. Use '*' to back up all caches.

--cache-configs='config1,config2,...'

Lists cache configurations to back up. Use '*' to back up all cache configurations.

--counters='counter1,counter2,...'

Lists of counters to back up. Use '*' to back up all counters.

--proto-schemas='schema1,schema2,...'

Lists Protobuf schemas to back up. Use '*' to back up all schemas.

--scripts='script1,script2,...'

Lists scripts to back up. Use '*' to back up all scripts.

9.2.4. BACKUP GET OPTIONS

--no-content

Does not download content. The command returns only when the backup operation is complete.

9.2.5. BACKUP RESTORE OPTIONS

-u, --upload

Defines the path to a local backup archive that is uploaded to the server.

-n, --name='NAME'

Defines a name for the restore request.

--caches='cache1,cache2,...'

Lists caches to restore. Use '*' to restore all caches from the backup archive.

--cache-configs='config1,config2,...'

Lists cache configurations to restore. Use '*' to restore all cache configurations from the backup archive.

--counters='counter1,counter2,...'

Lists counters to restore. Use '*' to restore all counters from the backup archive.

--proto-schemas='schema1,schema2,...'

Lists Protobuf schemas to restore. Use '*' to restore all schemas from the backup archive.

--scripts='script1,script2,...'

Lists scripts to restore. Use '*' to restore all scripts from the backup archive.

9.2.6. EXAMPLES

`backup create -n example-backup`

Initiates a backup of all container content with name `example-backup`.

`backup create -d /some/server/dir`

Initiates a backup of all container content and stores it on the server at path `/some/server/dir`.

`backup create --caches=* --cache-configs=*`

Initiates a backup that contains only cache and cache configuration resources.

`backup create --proto-schemas=schema1,schema2`

Initiates a backup that contains the named schema resources only.

`backup ls`

Lists all backups available on the server.

`backup get example-backup`

Downloads the `example-backup` archive from the server. If the backup operation is in progress, the command waits for it to complete.

`backup restore /some/path/on/the/server`

Restores all content from a backup archive on the server.

`backup restore -u /some/local/path`

Restores all content from a local backup archive that is uploaded to the server.

`backup restore /some/path/on/the/server --caches=*`

Restores only cache content from a backup archive on the server.

`backup restore /some/path/on/the/server --proto-schemas=schema1,schema2`

Restores only the named schema resources from a backup archive on the server.

`backup delete example-backup`

Deletes the `example-backup` archive from the server.

9.2.7. SEE ALSO

drop(1)

9.3. CACHE(1)

9.3.1. NAME

cache - selects the default cache for subsequent commands.

9.3.2. SYNOPSIS

cache ['CACHE_NAME']

9.3.3. EXAMPLE

cache mycache

Selects **mycache** and is the same as navigating the resource tree using **cd caches/mycache**.

9.3.4. SEE ALSO

cd(1), clear(1), container(1), get(1), put(1), remove(1)

9.4. CAS(1)

9.4.1. NAME

cas - performs 'compare-and-swap' operations on strong counters.

9.4.2. SYNOPSIS

cas ['OPTIONS'] ['COUNTER_NAME']

9.4.3. OPTIONS

--expect='nnn'

Specifies the expected value of the counter.

--value='nnn'

Sets a new value for the counter.

-q, --quiet='[true|false]'

Hides return values. The default is false.

9.4.4. EXAMPLE

cas --expect=10 --value=20 cnt_a

Sets the value of **cnt_a** to **20** only if the current value is **10**

9.4.5. SEE ALSO

add(1), cas(1), reset(1)

9.5. CD(1)

9.5.1. NAME

cd - navigates the server resource tree.

9.5.2. DESCRIPTION

PATH can be absolute or relative to the current resource. **../** specifies parent resources.

9.5.3. SYNOPSIS

cd ['PATH']

9.5.4. EXAMPLE

cd caches

Changes to the **caches** path in the resource tree.

9.5.5. SEE ALSO

cache(1), ls(1), container(1)

9.6. CLEARCACHE(1)

9.6.1. NAME

clearcache - removes all entries from a cache.

9.6.2. SYNOPSIS

clearcache ['CACHE_NAME']

9.6.3. EXAMPLES

clearcache mycache

Removes all entries from **mycache**.

9.6.4. SEE ALSO

cache(1), drop(1), remove(1)

9.7. CONFIG(1)

9.7.1. NAME

config - manages CLI configuration properties.

9.7.2. SYNOPSIS

config

config set 'name' 'value'

config get 'name'

9.7.3. DESCRIPTION

Manage (list, set, get) CLI configuration properties.

9.7.4. COMMAND SYNOPSIS

config

Lists all configuration properties that are set.

config set 'name' ['value']

Sets the value of a specific property. If you do not specify a value, the property is not set.

config get 'name'

Retrieves the value of a specific property.

9.7.5. COMMON OPTIONS

These options apply to all commands:

-h, --help

Displays a help page for the command or sub-command.

9.7.6. PROPERTIES

Available properties:

autoconnect-url

Specifies the URL to which the CLI automatically connects on startup, for example: **config set autoconnect-url** <http://user:password:11222>

autoexec

Specifies the path of a CLI batch file to execute on startup, for example: **config set autoexec** [/home/user/my-cli-batch-file](#)

trustall

Specifies whether to trust all server certificates without supplying a trust store, for example:

config set trustall true

truststore

Specifies the path of a truststore to validate server certificates, for example: **config set**

truststore /home/user/my-trust-store.jks

truststore-password

Specifies the password that corresponds to the truststore, for example: **config set truststore-**

password secret

9.8. CONNECT(1)

9.8.1. NAME

connect - connects to running \${infinispan.brand.name} servers.

9.8.2. DESCRIPTION

Defaults to <http://localhost:11222> and prompts for credentials if authentication is required.

9.8.3. SYNOPSIS

connect ['OPTIONS'] ['SERVER_LOCATION']

9.8.4. OPTIONS

-u, --username='USERNAME'

Specifies a username to authenticate with \${infinispan.brand.name} servers.

-p, --password='PASSWORD'

Specifies passwords.

9.8.5. EXAMPLE

connect 127.0.0.1:11322 -u test -p changeme

Connects to a locally running server using a port offset of 100 and example credentials.

9.8.6. SEE ALSO

disconnect(1)

9.9. CONTAINER(1)

9.9.1. NAME

container - selects the container for running subsequent commands.

9.9.2. SYNOPSIS

container ['CONTAINER_NAME']

9.9.3. EXAMPLE

`container default`

Selects the default container and is the same as navigating the resource tree using `cd containers/default`.

9.9.4. SEE ALSO

`cd(1)`, `clear(1)`, `container(1)`, `get(1)`, `put(1)`, `remove(1)`

9.10. COUNTER(1)

9.10.1. NAME

counter - selects the default counter for subsequent commands.

9.10.2. SYNOPSIS

counter ['COUNTER_NAME']

9.10.3. EXAMPLE

`counter cnt_a`

Selects `cnt_a` and is the same as navigating the resource tree using `cd counters/cnt_a`.

9.10.4. SEE ALSO

`add(1)`, `cas(1)`

9.11. CREATE(1)

9.11.1. NAME

create - creates caches and counters on `${infinispan.brand.name}` servers.

9.11.2. SYNOPSIS

create cache ['OPTIONS'] `CACHE_NAME`

create counter ['OPTIONS'] `COUNTER_NAME`

9.11.3. CREATE CACHE OPTIONS

-f, --file='FILE'

Specifies a configuration file in JSON or XML format.

-t, --template='TEMPLATE'

Specifies a configuration template. Use tab autocompletion to see available templates.

-v, --volatile='[true | false]'

Specifies whether the cache is persistent or volatile. The default is false.

9.11.4. CREATE COUNTER OPTIONS

-t, --type='[weak | strong]'

Specifies if the counter is weak or strong.

-s, --storage='[PERSISTENT | VOLATILE]'

Specifies whether the counter is persistent or volatile.

-c, --concurrency-level='nnn'

Sets the concurrency level of the counter.

-i, --initial-value='nnn'

Sets the initial value of the counter.

-l, --lower-bound='nnn'

Sets the lower bound of a **strong** counter.

-u, --upper-bound='nnn'

Sets the upper bound of a **strong** counter.

9.11.5. EXAMPLES

```
create cache --template=org.infinispan.DIST_SYNC mycache
```

Creates a cache named `mycache` from the `DIST_SYNC` template.

```
create counter --initial-value=3 --storage=PERSISTENT --type=strong cnt_a
```

Creates a strong counter named `cnt_a`.

9.11.6. SEE ALSO

`drop(1)`

9.12. DESCRIBE(1)

9.12.1. NAME

`describe` - displays information about resources.

9.12.2. SYNOPSIS

describe ['PATH']

9.12.3. EXAMPLES

`describe //containers/default`

Displays information about the default container.

`describe //containers/default/caches/mycache`

Displays information about the `mycache` cache.

`describe //containers/default/caches/mycache/k1`

Displays information about the `k1` key.

`describe //containers/default/counters/cnt1`

Displays information about the `cnt1` counter.

9.12.4. SEE ALSO

`cd(1)`, `ls(1)`

9.13. DISCONNECT(1)

9.13.1. NAME

`disconnect` - ends CLI sessions with `${infinispan.brand.name}` servers.

9.13.2. SYNOPSIS

disconnect

9.13.3. EXAMPLE

`disconnect`

Ends the current CLI session.

9.13.4. SEE ALSO

`connect(1)`

9.14. DROP(1)

9.14.1. NAME

`drop` - deletes caches and counters.

9.14.2. SYNOPSIS

drop cache `CACHE_NAME`

drop counter `COUNTER_NAME`

9.14.3. EXAMPLES

`drop cache mycache`

Deletes the `mycache` cache.

`drop counter cnt_a`

Deletes the `cnt_a` counter.

9.14.4. SEE ALSO

`create(1)`, `clearcache(1)`

9.15. ENCODING(1)

9.15.1. NAME

`encoding` - displays and sets the encoding for cache entries.

9.15.2. DESCRIPTION

Sets a default encoding for **put** and **get** operations on a cache. If no argument is specified, the **encoding** command displays the current encoding.

Valid encodings use standard MIME type (IANA media types) naming conventions, such as the following:

- `text/plain`
- `application/json`
- `application/xml`
- `application/octet-stream`

9.15.3. SYNOPSIS

encoding [`'ENCODING'`]

9.15.4. EXAMPLE

`encoding application/json`

Configures the currently selected cache to encode entries as `application/json`.

9.15.5. SEE ALSO

`get(1)`, `put(1)`

9.16. GET(1)

9.16.1. NAME

get - retrieves entries from a cache.

9.16.2. SYNOPSIS

get ['OPTIONS'] **KEY**

9.16.3. OPTIONS

-c, --cache='NAME'

Specifies the cache from which to retrieve entries. Defaults to the currently selected cache.

9.16.4. EXAMPLE

get hello -c mycache

Retrieves the value of the key named **hello** from **mycache**.

9.16.5. SEE ALSO

query(1), put(1)

9.17. HELP(1)

9.17.1. NAME

help - prints manual pages for commands.

9.17.2. SYNOPSIS

help ['COMMAND']

9.17.3. EXAMPLE

help get

Prints the manual page for the **get** command.

9.17.4. SEE ALSO

version(1)

9.18. LOGGING(1)

9.18.1. NAME

logging - inspects and manipulates the `infinispan.brand.name` server runtime logging configuration.

9.18.2. SYNOPSIS

logging list-loggers

logging list-appenders

logging set ['OPTIONS'] [LOGGER_NAME]

logging remove LOGGER_NAME

9.18.3. LOGGING SET OPTIONS

-l, --level='OFF|TRACE|DEBUG|INFO|WARN|ERROR|ALL'

Specifies the logging level for the specific logger.

-a, --appender='APPENDER'

Specifies an appenders to set on the specific logger. The option can be repeated for multiple appenders.



calling **logging set** without a logger name will modify the root logger.

9.18.4. EXAMPLES

logging list-loggers

Lists all available loggers

logging set --level=DEBUG --appenders=FILE org.infinispan

Sets the log level for the `org.infinispan` logger to `DEBUG` and configures it to use the `FILE` appender.

9.19. LS(1)

9.19.1. NAME

ls - lists resources for the current path or a given path.

9.19.2. SYNOPSIS

ls ['PATH']

9.19.3. EXAMPLES

ls caches

Lists the available caches.

```
ls ../
```

Lists parent resources.

9.19.4. SEE ALSO

cd(1)

9.20. MIGRATE(1)

9.20.1. NAME

migrate - migrates data from one version of `${infinispan.brand.name}` to another.

9.20.2. SYNOPSIS

migrate cluster synchronize

migrate cluster disconnect

9.20.3. DESCRIPTION

Use the `migrate` command to migrate data from one version of `${infinispan.brand.name}` to another.

9.20.4. COMMAND SYNOPSIS

Migrate clusters

migrate cluster synchronize

Synchronize data between the source cluster and the target cluster.

migrate cluster disconnect

Disconnects the target cluster from the source cluster.

9.20.5. COMMON OPTIONS

These options apply to all commands:

-h, --help

Displays a help page for the command or sub-command.

9.20.6. CLUSTER SYNCHRONIZE OPTIONS

-c, --cache='name'

The name of the cache to synchronize.

-b, --read-batch='num'

The amount of entries to process in a batch. Defaults to 10000.

-t, --threads='num'

The number of threads to use. Defaults to the number of cores on the server.

9.20.7. CLUSTER DISCONNECT OPTIONS

-c, --cache='name'

The name of the cache to disconnect from the source.

9.21. PATCH(1)

9.21.1. NAME

patch - manages server patches.

9.21.2. DESCRIPTION

List, describe, install, rollback, and create server patches.

Patches are zip archive files that contain artifacts to upgrade servers and resolve issues or add new features. Patches can apply target versions to multiple server installations with different versions.

9.21.3. SYNOPSIS

patch ls

patch install 'patch-file'

patch describe 'patch-file'

patch rollback

patch create 'patch-file' 'target-server' 'source-server-1' ['source-server-2'...]

9.21.4. PATCH LIST OPTIONS

--server='path/to/server'

Sets the path to a target server outside the current server home directory.

-v, --verbose

Shows the content of each installed patch, including information about individual files.

9.21.5. PATCH INSTALL OPTIONS

--dry-run

Shows the operations that the patch performs without applying any changes.

--server='path/to/server'

Sets the path to a target server outside the current server home directory.

9.21.6. PATCH DESCRIBE OPTIONS

-v, --verbose

Shows the content of the patch, including information about individual files

9.21.7. PATCH ROLLBACK OPTIONS

--dry-run

Shows the operations that the patch performs without applying any changes.

--server='path/to/server'

Sets the path to a target server outside the current server home directory.

9.21.8. PATCH CREATE OPTIONS

-q, --qualifier='name'

Specifies a descriptive qualifier string for the patch; for example, 'one-off for issue nnnn'.

9.21.9. EXAMPLES

```
patch ls
```

Lists the patches currently installed on a server in order of installation.

```
patch install mypatch.zip
```

Installs "mypatch.zip" on a server in the current directory.

```
patch install mypatch.zip --server=/path/to/server/home
```

Installs "mypatch.zip" on a server in a different directory.

```
patch describe mypatch.zip
```

Displays the target version and list of source versions for "mypatch.zip".

```
patch create mypatch.zip 'target-server' 'source-server-1' ['source-server-2'...]
```

Creates a patch file named "mypatch.zip" that uses the version of the target server and applies to the source server versions.

```
patch rollback
```

Rolls back the last patch that was applied to a server and restores the previous version.

9.22. PUT(1)

9.22.1. NAME

put - adds or updates cache entries.

9.22.2. DESCRIPTION

Creates entries for new keys. Replaces values for existing keys.

9.22.3. SYNOPSIS

put ['OPTIONS'] **KEY** [VALUE]

9.22.4. OPTIONS

-c, --cache='NAME'

Specifies the name of the cache. Defaults to the currently selected cache.

-e, --encoding='ENCODING'

Sets the media type for the value.

-f, --file='FILE'

Specifies a file that contains the value for the entry.

-l, --ttl='TTL'

Sets the number of seconds before the entry is automatically deleted (time-to-live). Defaults to the value for **lifespan** in the cache configuration if **0** or not specified. If you set a negative value, the entry is never deleted.

-i, --max-idle='MAXIDLE'

Sets the number of seconds that the entry can be idle. If a read or write operation does not occur for an entry after the maximum idle time elapses, the entry is automatically deleted. Defaults to the value for **maxIdle** in the cache configuration if **0** or not specified. If you set a negative value, the entry is never deleted.

-a, --if-absent=[true | false]

Puts an entry only if it does not exist.

9.22.5. EXAMPLES

```
put -c mycache hello world
```

Adds the **hello** key with a value of **world** to the **mycache** cache.

```
put -c mycache -f myfile -i 500 hola
```

Adds the **hola** key with the value from the contents of **myfile**. Also sets a maximum idle of **500** seconds.

9.22.6. SEE ALSO

`get(1)`, `remove(1)`

9.23. QUERY(1)

9.23.1. NAME

query - retrieves entries that match Ickle query strings.

9.23.2. SYNOPSIS

query ['OPTIONS'] **QUERY_STRING**

9.23.3. OPTIONS

-c, --cache='NAME'

Specifies the cache to query. Defaults to the currently selected cache.

--max-results='MAX_RESULTS'

Sets the number of results to return. The default is **10**.

-o, --offset='OFFSET'

Specifies the index of the first result to return. The default is **0**.

--query-mode='QUERY_MODE'

Specifies how the server executes the query. Values are **FETCH** and **BROADCAST**. The default is **FETCH**.

9.23.4. EXAMPLES

```
query "from org.infinispan.rest.search.entity.Person p where p.gender = 'MALE'"
```

Queries the currently selected cache to return entries from a Protobuf **Person** entity where the gender datatype is **MALE**.

9.23.5. SEE ALSO

schema(1)

9.24. QUIT(1)

9.24.1. NAME

quit - exits the command line interface.

9.24.2. SYNOPSIS

quit

9.24.3. EXAMPLE

```
quit
```

Exits the CLI.

9.24.4. SEE ALSO

disconnect(1), shutdown(1)

9.25. REMOVE(1)

9.25.1. NAME

remove - deletes entries from a cache.

9.25.2. SYNOPSIS

remove **KEY** ['OPTIONS']

9.25.3. OPTIONS

--cache='NAME'

Specifies the cache from which to remove entries. Defaults to the currently selected cache.

9.25.4. EXAMPLE

```
remove --cache=mycache hola
```

Deletes the **hola** entry from the **mycache** cache.

9.25.5. SEE ALSO

cache(1), drop(1), clearcache(1)

9.26. RESET(1)

9.26.1. NAME

reset - restores the initial values of counters.

9.26.2. SYNOPSIS

reset ['COUNTER_NAME']

9.26.3. EXAMPLE

```
reset cnt_a
```

Resets the **cnt_a** counter.

9.26.4. SEE ALSO

add(1), cas(1), drop(1)

9.27. SCHEMA(1)

9.27.1. NAME

schema - uploads and registers protobuf schemas.

9.27.2. SYNOPSIS

schema ['OPTIONS'] **SCHEMA_NAME**

9.27.3. OPTIONS

-u, --upload='FILE'

Uploads a file as a protobuf schema with the given name.

9.27.4. EXAMPLE

schema --upload=person.proto person.proto

Registers a **person.proto** Protobuf schema.

9.27.5. SEE ALSO

query(1)

9.28. SHUTDOWN(1)

9.28.1. NAME

shutdown - stops individual servers or performs orderly shutdowns for entire clusters.

9.28.2. SYNOPSIS

shutdown server ['SERVERS']

shutdown cluster

9.28.3. EXAMPLES

shutdown server my_server01

Stops the server with hostname **my_server01**.

shutdown cluster

Performs an orderly shutdown of all servers joined to the cluster.

9.28.4. SEE ALSO

connect(1), disconnect(1), quit(1)

9.29. SITE(1)

9.29.1. NAME

site - manages backup locations and performs cross-site replication operations.

9.29.2. SYNOPSIS

site status ['OPTIONS']

site bring-online ['OPTIONS']

site take-offline ['OPTIONS']

site push-site-state ['OPTIONS']

site cancel-push-state ['OPTIONS']

site cancel-receive-state ['OPTIONS']

site push-site-status ['OPTIONS']

9.29.3. OPTIONS

--cache='CACHE_NAME'

Specifies a cache.

--site='SITE_NAME'

Specifies a backup location.

9.29.4. EXAMPLES

site status --cache=mycache

Returns the status of all backup locations for **mycache**.

site status --cache=mycache --site=NYC

Returns the status of **NYC** for **mycache**.

site bring-online --cache=mycache --site=NYC

Brings the site **NYC** online for **mycache**.

site take-offline --cache=mycache --site=NYC

Takes the site **NYC** offline for **mycache**.

site push-site-state --cache=mycache --site=NYC

Backs up caches to remote backup locations.

site push-site-status --cache=mycache

Displays the status of the operation to backup **mycache**.

`site cancel-push-state --cache=mycache --site=NYC`

Cancels the operation to backup `mycache` to `NYC`.

`site cancel-receive-state --cache=mycache --site=NYC`

Cancels the operation to receive state from `NYC`.

`site clear-push-state-status --cache=myCache`

Clears the status of the push state operation for `mycache`.

9.30. STATS(1)

9.30.1. NAME

`stats` - displays statistics about resources.

9.30.2. SYNOPSIS

`stats` ['PATH']

9.30.3. EXAMPLES

`stats //containers/default`

Displays statistics about the default container.

`stats //containers/default/caches/mycache`

Displays statistics about the `mycache` cache.

9.30.4. SEE ALSO

`cd(1)`, `ls(1)`, `describe(1)`

9.31. TASK(1)

9.31.1. NAME

`task` - executes and uploads server-side tasks and scripts

9.31.2. SYNOPSIS

`task upload --file='script' 'TASK_NAME'`

`task exec` ['TASK_NAME']

9.31.3. EXAMPLES

`task upload --file=hello.js hello`

Uploads a script from a `hello.js` file and names it `hello`.

`task exec @@cache@names`

Runs a task that returns available cache names.

```
task exec hello -Pgreetee=world
```

Runs a script named `hello` and specifies the `greetee` parameter with a value of `world`.

9.31.4. OPTIONS

-P, --parameters='PARAMETERS'

Passes parameter values to tasks and scripts.

-f, --file='FILE'

Uploads script files with the given names.

9.31.5. SEE ALSO

ls(1)

9.32. USER(1)

9.32.1. NAME

`user` - manages `${infinispan.brand.name}` users in property security realms.

9.32.2. SYNOPSIS

user ls

user create 'username'

user describe 'username'

user remove 'username'

user password 'username'

user groups 'username'

user encrypt-all

9.32.3. DESCRIPTION

Manage (list, create, describe, remove, modify) users stored in a property security realm. Note: this command cannot interact with other security realms.

9.32.4. COMMAND SYNOPSIS

List users in the property security realm

user ls

Lists the users or groups which are present in the property files.

Create a user

user create 'username'

Creates a user. The command will prompt for a password and confirmation.

Describes a user

user describe 'username'

Describes a user, including its username, realm and any groups it belongs to.

Remove a user

user remove 'username'

Removes the specified user from the property files.

Sets a user's password

user password 'username'

Changes a user's password.

Set the groups a user belongs to.

user groups 'username'

Sets a user's groups.

Encrypt all of the passwords in a plain-text user property file.

user encrypt-all

Encrypt all passwords.

9.32.5. COMMON OPTIONS

These options apply to all commands:

-h, --help

Displays a help page for the command or sub-command.

-s, --server-root='path-to-server-root'

The path to the server root. Defaults to `server`.

-f, --users-file='users.properties'

The name of the property file which contains the user passwords. Defaults to `users.properties`.

-w, --groups-file='groups.properties'

The name of the property file which contains the user to groups mapping. Defaults to `groups.properties`.

9.32.6. USER CREATE/MODIFY OPTIONS

-a, --algorithms

Specifies the algorithms used to hash the password.

-g, --groups='group1,group2,...'

Specifies the groups to which the user belongs.

-p, --password='password'

Specifies the user's password.

-r, --realm='realm'

Specifies the realm name.

--plain-text

Whether passwords should be stored in plain-text (not recommended).

9.32.7. USER LS OPTIONS

--groups

Shows a list of groups instead of the users.

9.32.8. USER ENCRYPT-ALL OPTIONS

-a, --algorithms

Specifies the algorithms used to hash the password.

9.33. VERSION(1)

9.33.1. NAME

version - displays the server version and CLI version.

9.33.2. SYNOPSIS

version

9.33.3. EXAMPLE

version

Returns the version for the server and the CLI.

9.33.4. SEE ALSO

help(1)