

Ionic SDK CLI Release 1.8.0

Introduction

Welcome to the 1.8.0 release of the Ionic SDK CLI, 'machina'. This is the initial public release of the CLI, which implements most of the functionality of the SDK as a command-line utility, (basically, all the features that make sense in this context). The Ionic SDK is the client-side of Ionic's key management services. It interacts with an Ionic server to retrieve keys and policy and implements client-side encryption and decryption services with those keys. Generally speaking, a user can use the CLI to do enrollment, key management, and encryption/decryption tasks.

Details are summarized below.

Getting Started

You can find an introduction to the Ionic platform including a variety of "getting started" tutorials at Ionic's developer portal: dev.ionic.com

Some platforms have an installer (there is an RPM file available and a Windows Installer). However, if you received a zip file or tar file, then unzip/untar the files and place them in a convenient directory, preferably on the path. You should find an executable and a 'man' file. Since the 'man' file isn't installed into the 'man' directories you'll have to access by including the file on the 'man' command line. (For Windows users, there is now an HTML file equivalent to the 'man' file.)

Example:

```
man /usr/home/myname/ionicstuff/machina.1
```

In addition to the 'man' pages, you can also get abbreviated help on the command line.

```
machina --help
```

-or-

```
machina {command} --help
```

New Features

Mass encrypt/decrypt entire folder trees

File encrypt/decrypt commands can now encrypt a folder, file mask, or recurse across an entire folder tree. The mass commands will not stop for any error as with most commands, if the error applies only to a specific file, the command will continue to process the remaining files. The mass encrypted files from a folder tree now create a matching tree in the output directory.

More enrollment options

The CLI can now use IDC auth enrollment, SAML (as before) or LOUDEMAIL enrollment options. You may also use a KNS provider to lookup the enrollment URL and may use an alternate KNS provider URL. The CLI can now add a 'name' to profiles, which may help in a multiple profile case.

Use the '--name' option. Finally, you no longer have to pass the account password on the command line. If the password is omitted, the CLI will prompt for it.

New installation options

Version 1.8 brings in new installation options. Centos users now have an RPM installer and Windows users have a Windows specific installer as well. The SDK team plans more options here once the initial public release happens.

Raw crypto functions

The CLI now includes a set of raw crypto commands to encrypt without Ionic headers. These are included for completeness, but are not recommended for general use. You can use an Ionic managed key for the AES options, but you will have to remember which key applies to which encrypted file. These commands can output raw binary or base64 encoded data.

New key vault options

The key vault commands now include some reporting options to check which keys the vault contains.

New support for user config files

The CLI now potentially auto-loads config files from three locations. Refer to the 'man' file for specific details on where these can be placed and how to name them.

New key create / fetch option to return limited info

Key create can return only the key ID's, and key fetch can return only the key instead of the full key JSON with all the attributes.

Documentation improvements

The 'man' file includes new detailed sections, and the Windows build now includes an HTML version of the 'man' file.

Device persistors gain multi-process protection

Running more than one instance of the CLI with profile commands should be safe now.

Added a default profile persistor and default key vault for Linux users

These use the Linux file protections and not Ionic encryption. The file permissions are limited to the user only.

Metadata added to key requests

The CLI now sets the following meta data fields,

- application-name - Machina CLI
- ionic-client-name - Machina CLI
- application-version - {CLI version, 1.8.0+build}
- ionic-client-version - {CLI version, 1.8.0+build} The user may override these values.

New KNS options (Keyspace Name Server)

CLI adds a new command 'profile kns' to directly query a KNS provider, adds a KNS option to enroll, and adds the 'profile update' command to update an existing profile from a KNS provider.

Discontinued Support

RefID no longer returned

The internal RefID is no longer presented in key create outputs. It had no use outside of the internal code.

Additional Notes

Build signing

Builds now include PGP signing, and Apple builds include an Apple signature.

Report outputs now use stdout

Logging and error reports still use stderr, but query results, for example, from a profile command, will now go to stdout.

Various crash fixes

In a number of failure cases, the CLI might crash instead of correctly reporting the error.

Manually edited profiles tolerant of trailing slashes in the URL now

Improved handling of entropy exhaustion

Some Linux installs, especially virtual machine instances of Linux, can easily exhaust their entropy cache, in which case, the CLI or the underlying SDK used to hang at startup until entropy was available. Both the SDK and the CLI will now timeout and report an error. Installation of an entropy utility like 'haveged' can mitigate this situation.

Better error reporting on profile loading

Some incompatible options will now generate an error. The error report for a missing profile file is clarified. (An empty file is OK for some commands, but any commands needing key access will fail.)

Removed a spurious warning about key vault loading

Failed encryption / decryption notes

In the case of a failed inplace encrypt/decrypt, the CLI will not affect the source file. When the output file is not the same as the source file, the CLI will instead remove the output file on failure.

Windows enrollment fixes

Missing output directories and e-mail addressing with non-url safe symbols were causing some issues that have been addressed.

Bug fix: reversed logic on 'chunk decrypt' command option

The -vault option to check a loaded key vault for the required key was reversed.

'file getinfo' command now defaults to auto type

This command used to default to generic encryption as the encrypt / decrypt commands do. However, 'auto' should work in more cases - including generic encrypted files.

Remove leading/trailing spaces in attribute and meta data

Some people were placing spaces around key values and the CLI was improperly parsing these spaces. The CLI now ignores these spaces.

Supported Platforms

The Ionic SDK CLI is tested against the following platform configurations:

PLATFORM	VERSION
LINUX	CentOS 7.5-1804
LINUX	Ubuntu 18.04
LINUX	Mint 18.2
WINDOWS	Windows 7 (32 and 64 bit)
WINDOWS	Windows 8.1 (32 and 64 bit)
WINDOWS	Windows 10 (32 and 64 bit)
MACOS	macOS 11 (El Capitan)
MACOS	macOS 12 (Sierra)

Known Issues

- Currently, if you installed from a .zip or .tar file, you must explicitly point 'man' to the path for the man page: (i.e. `man -M ./ ./machina.1`)
- On a failed encryption / decryption to different destination from the source, the destination file will be deleted.