

In kruise-tools, some sub commands are developed by import in cmd.go, such as:

scale Set a new size for a Deployment, ReplicaSet or Replication Controller
autoscale Auto-scale a Deployment, ReplicaSet, or ReplicationController

Cluster Management Commands: (Described in cmd.go)

certificate Modify certificate resources.
cluster-info Display cluster info
top Display Resource (CPU/Memory/Storage) usage.
cordon Mark node as unschedulable
uncordon Mark node as schedulable
drain Drain node in preparation for maintenance
taint Update the taints on one or more nodes

Troubleshooting and Debugging Commands: (Described in cmd.go)

describe Show details of a specific resource or group of resources
logs Print the logs for a container in a pod
attach Attach to a running container
exec Execute a command in a container
port-forward Forward one or more local ports to a pod
debug Attach a debug container to a running pod

Advanced Commands: (Described in cmd.go)

diff Diff live version against would-be applied version
apply Apply a configuration to a resource by filename or stdin
patch Update field(s) of a resource using strategic merge patch
replace Replace a resource by filename or stdin
wait Experimental: Wait for a specific condition on one or many resources.
kustomize Build a kustomization target from a directory or a remote url.

Other Commands: (Described in cmd.go)

api-resources Print the supported API resources on the server
api-versions Print the supported API versions on the server, in the form of "group/version"
config Modify kubeconfig files
plugin Provides utilities for interacting with plugins.
version Print the client and server version information

The other commands are developed in code, for example:

CloneSet Commands: (Developed as code)

kubectl-kruise rollout Manage the rollout of a resource

Check the history of deployments including the revision
kubectl-kruise rollout history deployment/frontend

Rollback to the previous deployment
kubectl-kruise rollout undo deployment/frontend

Rollback to a specific revision

```
kubectl-kruise rollout undo deployment/frontend --to-revision=2
```

```
# Watch rolling update status of "frontend" deployment until completion  
kubectl-kruise rollout status -w deployment/frontend
```

```
# Rolling restart of the "frontend" deployment  
kubectl-kruise rollout restart deployment/frontend
```

```
kubectl-kruise migrate      # Migrate from K8s original workloads to Kruise workloads
```

For each rollout command, it calls `NewCmdRollout()` to return a pointer of `cobra.Command`, which includes the commands from the sub commands.

Firstly, for each rollout sub-command function, it returns an initialized options instance and then creates a variable `validArgs` to declare their supporting resource type. After these, each sub-command function initializes a new `cobra.Command` with the previous initialized options and `validArgs`, and adds a file name option with the file name usage. After this, in some conditions some flags are added to the command, and then each rollout sub-command function returns the command to function `NewCmdRollout()`,

When initializing each sub-command in the rollout sub-command function, there are some options of the function: `Use`, `DisableFlagsInUseLine`, `Short`, `Long`, `Example`, `Run`, `ValidArgs`. `Use` tells the format of the sub-command; `DisableFlagsInUseLine` is always true; `Short` and `long` arguments describe the usage of the command shortly; `Example` gives some examples for running these sub-commands.

For the run argument, it calls the option's three functions: `Complete()`, `Validate()` and `Run()`. The function `Complete()` completes all the required options; The function `Validate()` makes sure all the provided values for command-line options are valid; The `Run()` function performs the execution of 'rollout [sub-command]' sub-command. When executing the `Run()` function, the builder resource is dynamic at the beginning, and the decision of which type of resource to get is based on `o.Resources`. The rollback execution is in `rollbacker.Rollback(...)`. The `rollbacker` is an interface type and its real implementation types include `DaemonSetRollbacker` and `CloneSetRollbacker`. This `rollbacker` object is generated by `internalpolymorphichelpers.RollbackerFn` according to the actual resource type. To avoid the potential mistake, this argument calls `cmdutil.CheckErr()` function with the parameters from the returned value from `Complete()`, `Validate()` and `Run()`, to check if there is any returned error from these three functions.

For migrate command, its running process is similar to rollout command: Create a `cobra.Command` instance and return its pointer, which is initialized with a migrate option. The difference is that different commands have different flags, options and samples. Unlike the rollout command, the migrate command does not have the `Validate()` function because it does not have a sub-command. Moreover, kruise-tools considers the clonsets as a special case and at this time the `Run()` function will call `migrateCloneSet()` function to perform the migration execution.

