


A BETTER WAY TO MANAGE COMMAND LINE TOOLS

What we learned from  software industry to improve command-line tool development



BO HOU

DevLead @ Build Services - Platform - **Criteo**

FAMILY



winybuddha.com > blog > 8-tips-dont-lose-yourself

Don't Lose Yourself

12 Signs You're Losing Yourself

May 13, 2022 — 1. You no longer have a social life. 2. You compare yourself to others. 3. You feel like you're not being heard.

Mar 10, 2022

Lose Ourselves in Relationships

https://www.quora.com/

How do you lose yourself in a relationship?

The short answer is that you lose yourself in a relationship when you lose your sense of self.

21 Signs You're Losing Yourself in a Relationship

Jan 5, 2022 — When losing your identity in a relationship, your opinion of yourself goes downhill. It can result in self-doubt and a loss of confidence. You may feel like you're losing yourself in a relationship. More elaborate answer: Losing yourself in a relationship can be a result of poor boundaries in childhood.

Relationships

parent > 5-warnin...

Losing Yourself in a Relationship

You're unhappy and often feel like you're not being heard.

"Losing Yourself" in a relationship?

COMMAND LINE TOOL

REIMPLEMENT COMMON FUNCTIONS

- Release and deployment
- Auto-update
- Arguments parsing
- Auto-completion
- Credential management
- Configuration management



(ALMOST) MISSING FEATURES

- Observability
- Progressive rollout
- A/B testing
- Log management

USER'S PERSPECTIVE

- Discovery
- Setup & Install
- Inconsistent User Interface
- Sharing

GIT CLONE "BUILD-SERVICES-DIRTY**-SCRIPTS"**



```
$ remove-agents.sh █
```



```
$ remove-agents.sh  
Error: invalid input  
  
$ █
```



```
$ remove-agents.sh  
Error: invalid input
```

```
$ remove-agents.sh
```

```
Remove agents with low disk space
```

```
Usage:
```

```
  remove-agents.sh [flags]
```

```
Flags:
```

```
  -h, --help      print help  
  -u, --url       cluster url  
  -s, --size      disk threshold  
  -w, --wait      wait job to finish
```

```
$
```



```
$ remove-agents.sh
```



```
$ remove-agents.sh
Removing agent e3b82dd06757 ...
Removing agent 98c24387ef40 ...
Removing agent 821a1813ad56 ...
Removing agent bdb68378edcf ...
Removing agent 24856a0d2f04 ...
Removing agent d26943e20b45 ...
Removing agent 42e8d7611ac0 ...
Removing agent e93d3965c037 ...
Removing agent 7db950b3a410 ...
Removing agent 75a34448c538 ...
Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C
Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C
Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C

Removed 230 agents ...

$
```



```
$ remove-agents.sh
Removing agent e3b82dd06757 ...
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Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C
Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C
Ctrl-C Ctrl-C Ctrl-C Ctrl-C Ctrl-C

Removed 230 agents ...

$
```

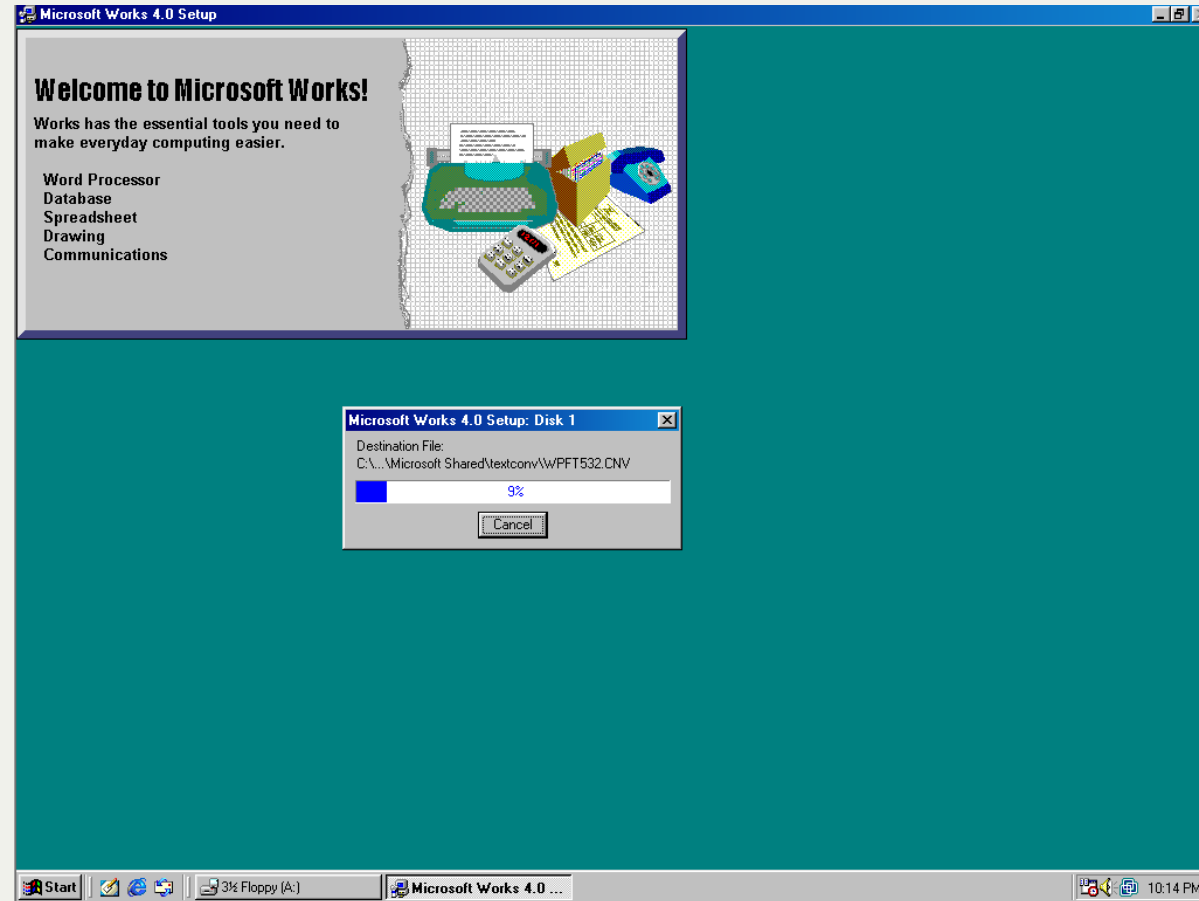


RECAP

- Provide standard functionalities
- Treat command line tools as the first-class citizen
- Make commands easy to be discovered
- Easy to install
- Consistent user interface
- Raise the base quality of all scripts for sharing

DESKTOP SOFTWARE DEVELOPMENT IN 90S/00S

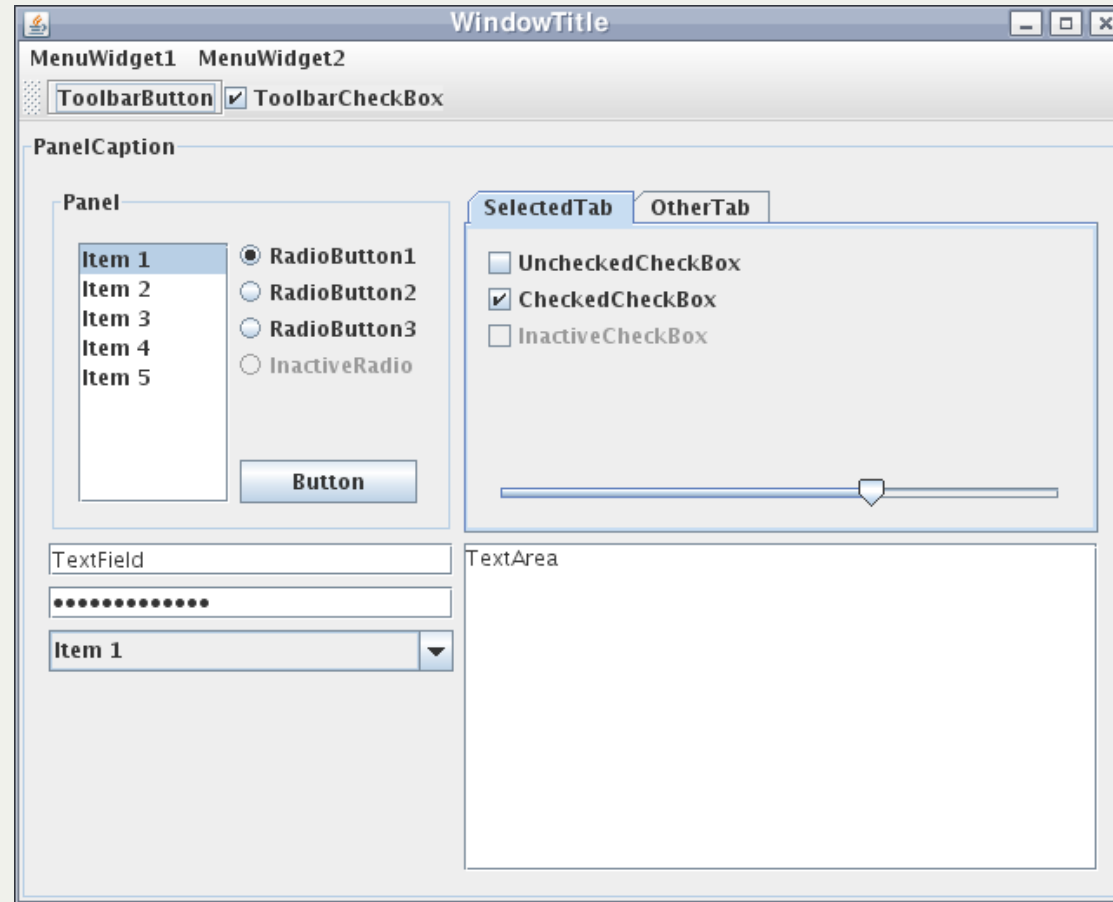
INSTALLERS



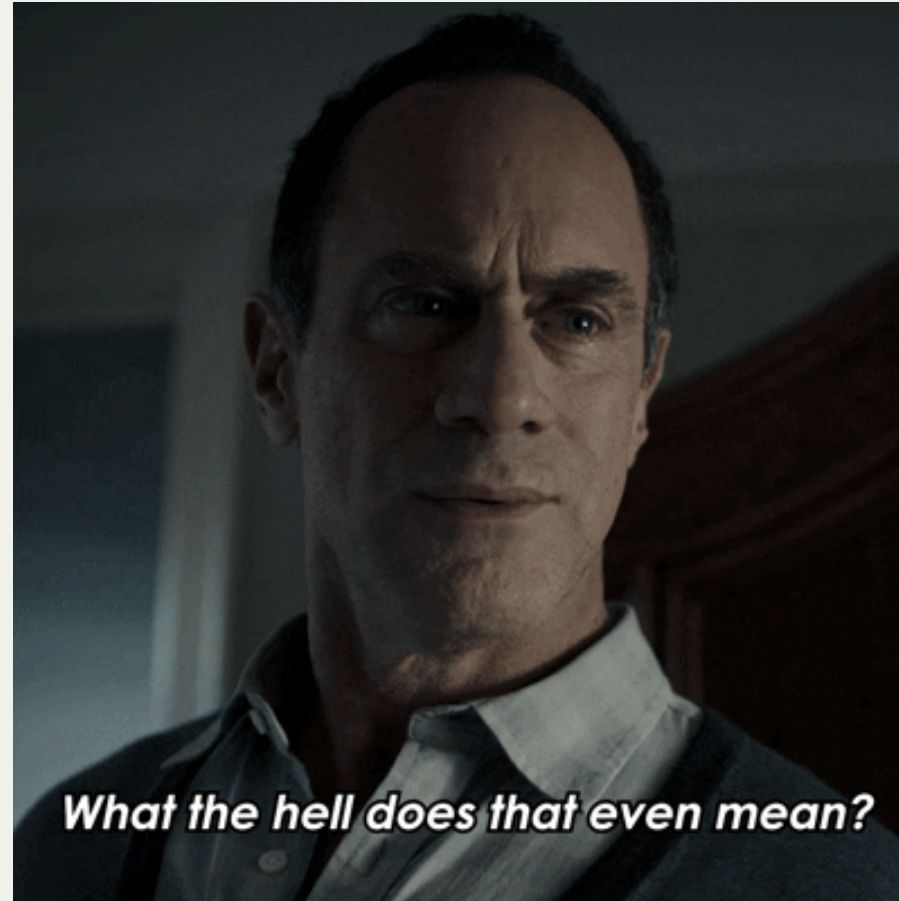
RELEASE & DEPLOYMENT



GRAPHICAL INTERFACE



A/B TESTING



DISCOVERY

SPECIAL ISSUE

MARCH 1993 \$2.50 in USA
A McGraw-Hill Publication
\$2.95 in Canada/£1.85 in U.K.

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LISA

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APPLE IIe

WHAT EXTRAS DOES IT OFFER?



APPLE IIe

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LISA

0 76950 14151 03

Without Computer and Games
Refer to Scan up the block

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Software as a Service

- No installation
- Functions integrated in browser
- Unified interface language: HTML & CSS
- Discovery with search engine
- Continuous Delivery

TAKE A CLOSER LOOK

Browser

- Entry point
- Common functionalities

HTML & CSS

- Declarative user interface
- Discovery
- Separate concerns

Web server

- Business logic
- Technology agnostic

FILL IN THE BLANKS

Command Launcher

- Entry point
- Common functionalities

Manifest file

- Declarative user interface
- Discovery
- Separate concerns

Program/Script

- Business logic
- Technology agnostic

HOW DOES IT WORK?

Command Launcher is compiled with name "cdt" aka Criteo Dev Toolkit

```
1 // manifest.mf
2 pkgName: my-first-package
3 version: 0.0.1
4 cmds:
5   - name: greeting
6     executable: "{{.PackageDir}}/hi"
```

```
● ● ●
$ tree
my-first-package
├── hi
└── manifest.mf

0 directories, 2 files
```

```
● ● ●
$ cdt greeting SRECon
```

HOW DOES IT WORK?

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```
● ● ●
$ tree
my-first-package
├── hi
└── manifest.mf

0 directories, 2 files
```

```
● ● ●
$ cdt greeting SRECon
Hello SRECon!

$ ./hi SRECon
Hello SRECon!

$
```

NATIVE-LIKE SCRIPTS

```
1 # remove-agents.sh
2 CLUSTER_URL=${URL:-default-cluster}
3 DISK_SIZE_LIMIT=${SIZE:-20G}
4
5 # do real stuff here
```

```
1 // manifest.mf
2 pkgName: agent-ops
3 version: 0.0.1
4 cmds:
5   - name: agent
6     type: group
7   - name: remove
8     type: executable
9     group: agent
10    short: remove agents with low disk
11    long: |
12      Remove agents with low disk.
13
14    executable: {{.PackageDir}}/remove-agents.sh
15    examples:
16      - scenario: remove agents with disk space below 50G
17        cmd: remove --url http://cluster.com --size 50G
18    requiredFlags:
19      - "url\t cluster url"
20      - "size\t disk size threshold"
21    checkFlags: true
```

NATIVE-LIKE SCRIPTS

```
1 # remove-agents.sh
2 CLUSTER_URL=${CDT_FLAG_URL:-default-cluster}
3 DISK_SIZE_LIMIT=${CDT_FLAG_SIZE:-20G}
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5 # do real stuff here
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16      - scenario: remove agents with disk space below 50G
17        cmd: remove --url http://cluster.com --size 50G
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19      - "url\t cluster url"
20      - "size\t disk size threshold"
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NATIVE-LIKE SCRIPTS

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1 # remove-agents.sh
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```

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7   - name: remove
8     type: executable
9     group: agent
10    short: remove agents with low disk
11    long: |
12      Remove agents with low disk.
13
14    executable: { {.PackageDir} }/remove-agents.sh
15    examples:
16      - scenario: remove agents with disk space below 50G
17        cmd: remove --url http://cluster.com --size 50G
18    requiredFlags:
19      - "url\t cluster url"
20      - "size\t disk size threshold"
21    checkFlags: true
```



```
$ cdt agent remove
```

Remove agents with low disk.

Usage:

```
  cdt agent remove [flags]
```

Examples:

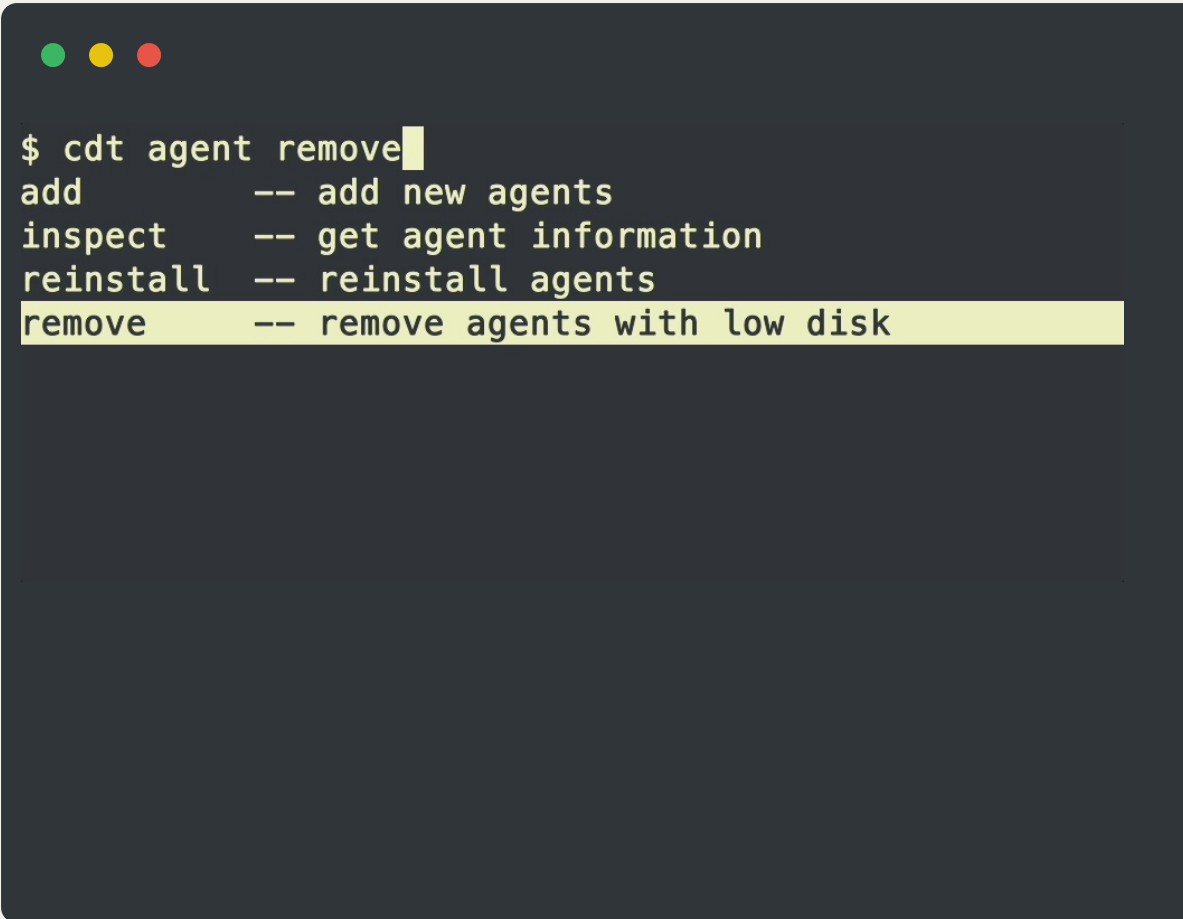
```
# remove agents with disk space below 50G
remove --url cluster.com --size 50G
```

Flags:

```
-h, --help           help for remove
--size string        disk size threshold
--url string         cluster url
```

```
$
```

AUTO-COMPLETION



```
$ cdt agent remove  
add          -- add new agents  
inspect     -- get agent information  
reinstall   -- reinstall agents  
remove      -- remove agents with low disk
```


CREDENTIAL MANAGEMENT

```
● ● ●  
  
$ cdt login --user b.hou  
Please enter your password: █
```

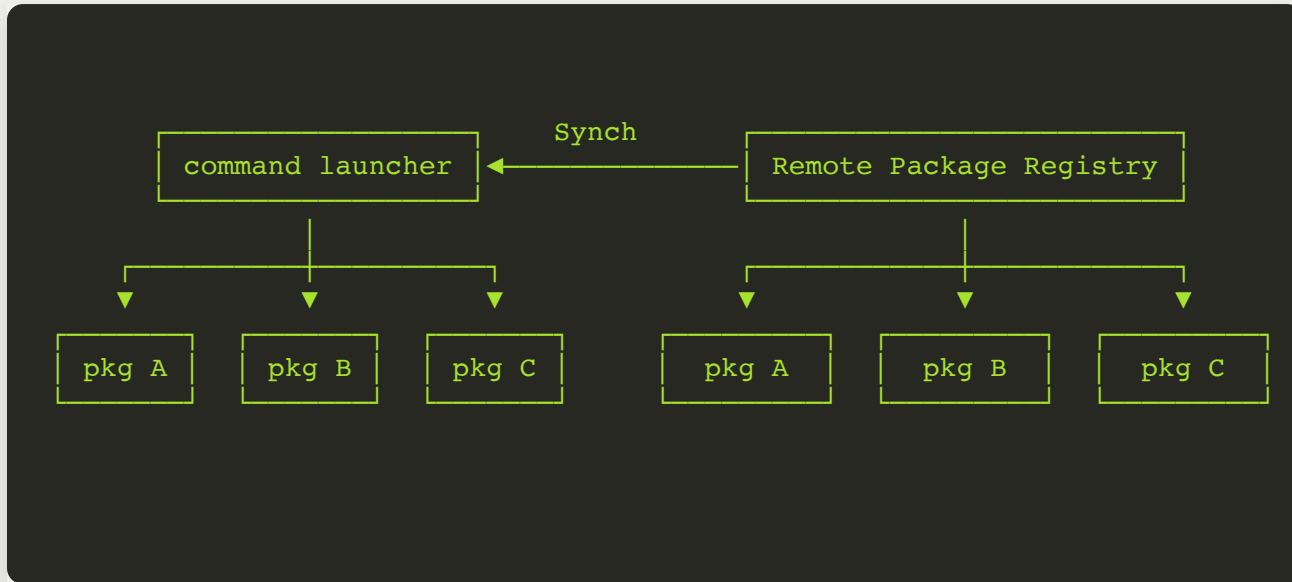
```
1 # remove-agents.sh  
2 CLUSTER_URL=${CDT_FLAG_URL:-default-cluster}  
3 DISK_SIZE_LIMIT=${CDT_FLAG_SIZE:-20G}  
4  
5 USERNAME=${CDT_USERNAME}  
6 TOKEN=${CDT_TOKEN}  
7  
8 # do real stuff here with credentials
```

```
1 // manifest.mf  
2 ...  
3 cmds:  
4 ...  
5 - name: remove  
6   type: executable  
7   group: agent  
8   short: remove agents with low disk  
9   long: |  
10      Remove agents with low disk.  
11  
12   executable: {{.PackageDir}}/remove-agent  
13   examples:  
14     - scenario: remove agents with disk sp  
15       cmd: remove --url http://cluster.com  
16   requestedResources:  
17     - USERNAME  
18     - TOKEN  
19   ...
```

```
● ● ●  
  
$ cdt agent remove --url cluster.url --size 50G  
Command 'agent remove' requests access to the following resources:  
- USERNAME  
- TOKEN  
  
authorize the access? [yN]  
y  
Removing agents ...
```

DELIVERY & AUTO-UPDATE

ENTERPRISE SCENARIO



```
// remote package registry
[
  {
    "name": "moab-ci",
    "version": "49823",
    "checksum": "cc09377f2992f66a18efc87c9dc3bd5fea016a37fc",
    "url": "http://nexus.criteo.prod/ci-49823.zip",
    "startPartition": 0,
    "endPartition": 9
  },
  {
    "name": "moab-ci",
    "version": "1.1049525.4.1105-review",
    "checksum": "99581d42de2e01270f80795e0d557e7459079b459d",
    "startPartition": 3,
    "endPartition": 4,
    "url": "http://nexus.criteo.prod/ci-1.1049525.4.1105-r"
```



```
$ cdt greeting SRECon
Hello! SRECon
```

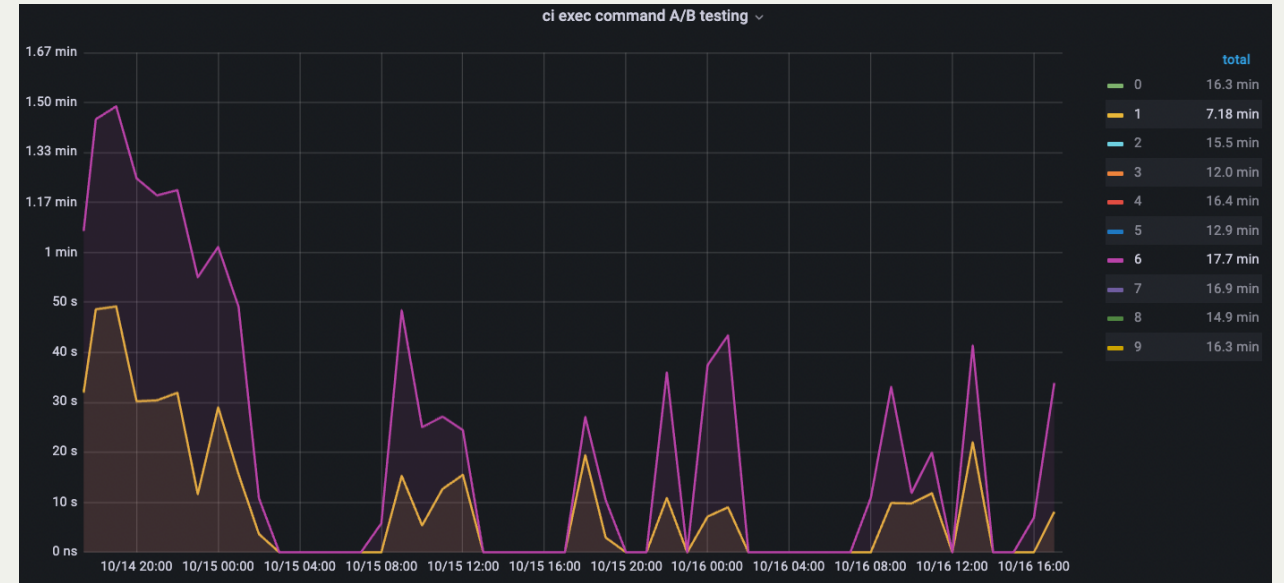
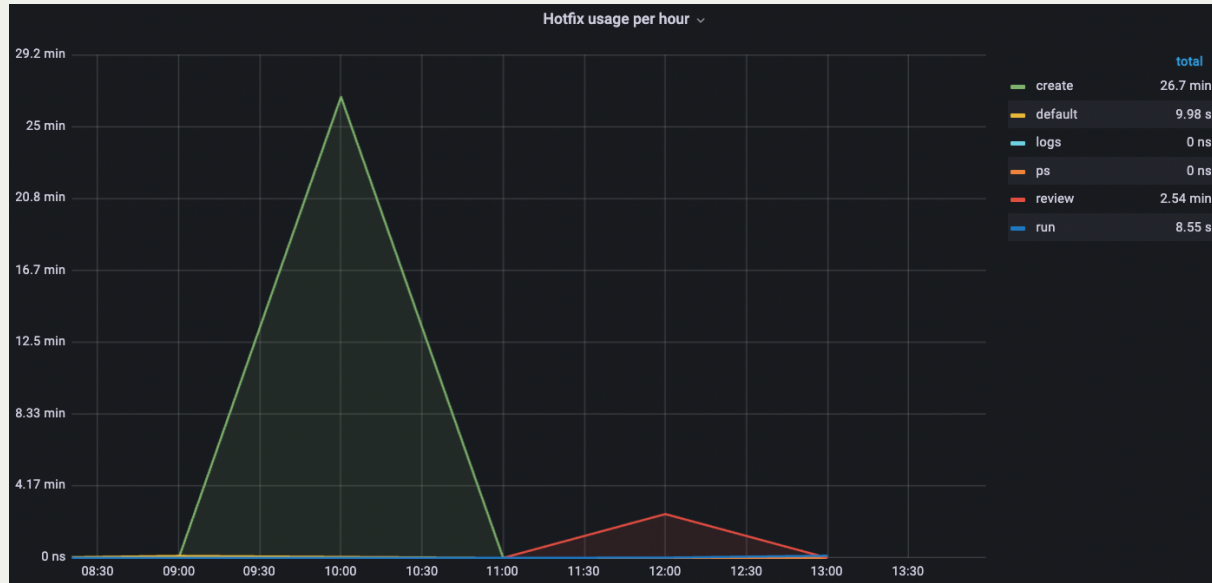
```
-----
Some commands require update, please wait...
- upgrade command 'moab-ci' from version 49822 to version 49823 ...
transferred 58.39%
```



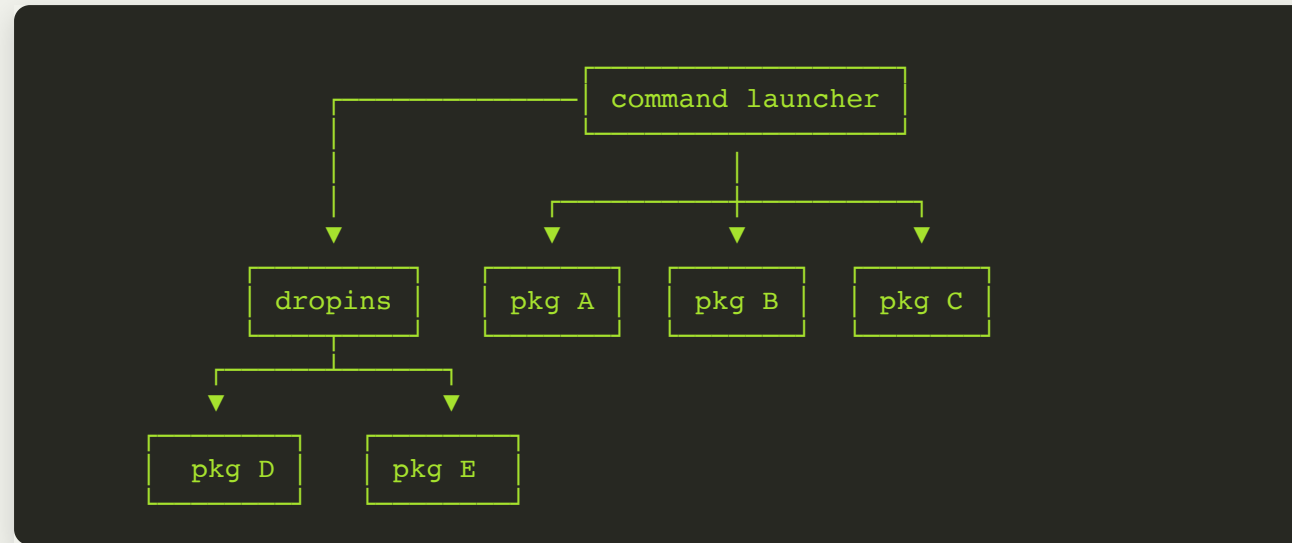
PROGRESSIVE ROLLOUT

```
1 // remote package registry
2 [
3   {
4     "name": "moab-ci",
5     "version": "49823",
6     "checksum": "cc09377f2992f66a18efc87c9dc3bd5fea016a37fc7c1ef1d8fa80cf9bb35006",
7     "url": "http://nexus.criteo.prod/ci-49823.zip",
8     "startPartition": 0,
9     "endPartition": 9
10  },
11  {
12    "name": "moab-ci",
13    "version": "1.1049525.4.1105-review",
14    "checksum": "99581d42de2e01270f80795e0d557e7459079b459c00180cd3db6947c630196f",
15    "startPartition": 3,
16    "endPartition": 4,
17    "url": "http://nexus.criteo.prod/ci-1.1049525.4.1105-review.zip"
18  },
19  {
20    "name": "hotfix",
21    "version": "1.0.0-49605",
22    "checksum": "d3226cd55c5fa292286b49201e9d07b2b16d112555854955cd0261765e26e2"
```

MONITORING & A/B TESTING



SHARING WITH DROPINS



```
• • •  
$ cdt install --git https://github.com/criteo/example-pkg.git
```

<https://github.com/criteo/command-launcher>



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medium.com/@bohoul



Command Launcher

[github.com/criteo/command-](https://github.com/criteo/command-launcher)

[launcher](https://github.com/criteo/command-launcher)



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