r2s: A Terminal User Interface for ROS 2



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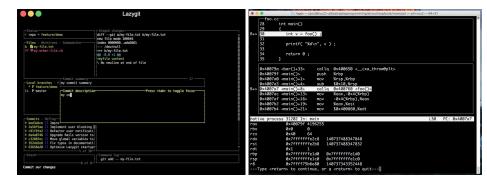


Jenn Nguyen

@jennuine



What is a TUI?



Terminal (or Text-) User Interface

GUI-like interfaces that render directly in your shell (local or remote)

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	root	20		10376	7208	2120		4.0			6 /usr/bin/dpkgstatus-fd 15no-trigge	ers
	root			61 016					0.3		7 apt install firefox-esr	
338	root			5080	3440	2732		θ.Θ	0.0			
	root	20		3872	3204	2736					0 /bin/bash	
	root			18280	7040	5340					<pre>1 lynx https://github.com/htop-dev/htop</pre>	
467	root			18280	7044	5348					1 lynx google.com	
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1362	root			7540	896	792		0.0	0.0	0:00.00	0 dpkg-debfsys-tarfile /tmp/apt-dpkg-i	nsta
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Help										-F8Nice +	+⊒Xill ≇Douit	



k9s -> r2s

Context: minikube Cluster: minikube User: minikube K9s Rev: dev K8s Rev: v1.17.3 CPU: 5% MEM: 17%	<0> all <1> kube-system <2> default	<a> <ctrl-d> <d> <e> <ctrl-k> <l></l></ctrl-k></e></d></ctrl-d>	Delete Describe Edit Kill	<ctrl-j <ctrl-l <shift- <shift- <s> <y></y></s></shift- </shift- </ctrl-l </ctrl-j 	> Log l> Log	gs <ste gs Prev ct-Forw ell</ste 				 	· / / /
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NAMESPACE	NAME	READY RES	TART STATUS	CPU	MEM 9	CPU/R	%MEM/R	%CPU/L	%MEM/L	IP	NODE
default	hello-1582785780-lsrtd	0/1	0 Complete	ed n/a	n/a	n/a	n/a	n/a		172.17.0.12	minikube
default	hello-1582785840-rq8h5		0 Complet								
default	hello-1582785900-4zbkf		0 Complet								
default	jaeger-5bbc8c887-cmjj7	1/1	1 Running	Θ						172.17.0.11	minikube
default	nginx	1/1	1 Running	Θ						172.17.0.10	minikube
default	nginx-6fbbbdc48c-5kv5p	1/1	0 Running	Θ			28			172.17.0.15	minikube
default	nginx-6fbbbdc48c-7xn7j	1/1	0 Running	n/a	n/a	n/a	n/a	n/a	n/a	172.17.0.7	minikube
default	nginx-6fbbbdc48c-bmqqj	1/1	0 Running	n/a	n/a	n/a	n/a	n/a	n/a	172.17.0.13	minikube
default	nginx-6fbbbdc48c-jf944	1/1	0 Running	n/a	n/a	n/a	n/a	n/a	n/a	172.17.0.12	minikube
default	nginx-6fbbbdc48c-xwjnb	1/1	0 Running				39		19	172.17.0.14	minikube
kube-system	coredns-6955765f44-2pkvx	1/1	1 Running				10			172.17.0.2	minikube
kube-system	coredns-6955765f44-wr88k	1/1	1 Running				10			172.17.0.3	minikube
kube-system	etcd-minikube	1/1	1 Running	20	29					192.168.64.15	minikube
kube-system	fluentd-elasticsearch-vnt25	1/1	1 Running		51					172.17.0.5	minikube
kube-system	kube-apiserver-minikube	1/1	1 Running	47	227	18				192.168.64.15	minikube
kube-system	kube-controller-manager-minikube	1/1	2 Running	20		10				192.168.64.15	minikube
kube-system	kube-proxy-sqs9s	1/1	1 Running	Θ	14				Θ	192.168.64.15	minikube
kube-system	kube-scheduler-minikube	1/1	2 Running		12				Θ	192.168.64.15	minikube
kube-system	metrics-server-6754dbc9df-t8x2n	1/1	1 Running	Θ	13				Θ	172.17.0.8	minikube
kube-system	metrics-server-6754dbc9df-tz7kh	1/1	1 Running		10					172.17.0.6	minikube
kube-system	storage-provisioner	1/1	2 Running							192.168.64.15	minikube
kubernetes-dashboard	dashboard-metrics-scraper-7b64584c5c-5tjsh	1/1	1 Running							172.17.0.4	minikube
kubernetes-dashboard	kubernetes-dashboard-79d9cd965-wbzvv	1/1	1 Running	Θ	11					172.17.0.9	minikube

<pulses> <pod>

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Our answer: r2s

In short: TUI wrapper of ROS 2 command line tools (ros2cli)





Textual

Relatively new TUI library

API inspired by modern web development.

Includes mouse support, full color support, layout engine, and component library.

Textual Demo		Widgets							
We hope you enjoy using Textual.	widgets are	e powerful interactive	components.						
Here are some links. You can click these!		use the builtin widgets							
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CTRL+B Sidebar CTRL+T Toggle Da	al mode CTDL C	Screenshot F1 Notes	CTRL+0 Dust						

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Features of r2s



田	0.0.1			textual run dev r2s.main:main 172x59	9		
r2s Version: ROS Version: Hostname: Workspace:	0.0.1 rolling dalinar.loca /home/mjcarn	al roll/repos/r2s					
Namespace	Name	Subscribers	Publishers	— Nodes (visible) [0] —— Service Servers	Service Clients	Lifecycle	
	Interfaces						

Current features

- Nodes
- Topics, Services and Actions
- Filter based off search expressions
- Generic Header, GridView, and LogView Widgets
- Viewing logs from a node (WIP)



Future ideas

- Parameters
- Publishing from r2s
- Changing phases of lifecycle nodes
- Interacting with launch
- Loading components such as composable nodes
- Showing message definitions
- Expanding to Gazebo cli tools (and colcon!)
- and much more!



• Check us out on github:

https://github.com/mjcarroll/r2s

• Can use ROS 2 demo system for reference:

https://github.com/safe-ros/reference system

• Questions?



