

Kubernetes Most-Used Commands

Run the emulator, copy a command from the table, and watch the text output plus the node canvas to understand which resource moves, where it runs, and what changes inside the cluster.

How to use it

- Run the commands in order first so resources exist before checking services, endpoints, HPA or ingress.
- The node canvas shows pods, private IPs, services, profile and simulated permissions.
- The lab is safe: it does not connect to a real cluster.

50 explained commands

12 guided challenges

Responsive kubectl command table

#	Category	Command	Explanation	Action
1	Basics	<code>kubectl version --client</code>	Shows the local kubectl client version to validate client compatibility.	Copy / load

#	Category	Command	Explanation	Action
2	Basics	<code>kubectl cluster-info</code>	Shows control plane and main cluster service information.	Copy / load
3	Context	<code>kubectl config current-context</code>	Shows the active context where kubectl will send commands.	Copy / load
4	Context	<code>kubectl config get-contexts</code>	Lists configured contexts, user, cluster and associated namespace.	Copy / load
5	Security/RBAC	<code>kubectl auth can-i get pods</code>	Checks whether the current profile can list pods according to RBAC.	Copy / load
6	API	<code>kubectl api-resources</code>	Lists available resources, aliases, API version and namespace scope.	Copy / load

#	Category	Command	Explanation	Action
7	API	<code>kubectrl api-versions</code>	Shows available API versions for compatible manifests.	Copy / load
8	API	<code>kubectrl explain pod</code>	Explains the structure and main fields of the Pod resource.	Copy / load
9	Nodes	<code>kubectrl get nodes</code>	Lists cluster nodes and their Ready/NotReady state.	Copy / load
10	Nodes	<code>kubectrl describe node ww-node-02</code>	Shows capacity, conditions, role and private IP of the worker node.	Copy / load
11	Nodes	<code>kubectrl top nodes</code>	Shows simulated CPU and memory metrics by node.	Copy / load

#	Category	Command	Explanation	Action
12	Namespaces	<code>kubectl get namespaces</code>	Lists namespaces available in the cluster.	Copy / load
13	Namespaces	<code>kubectl create namespace ww-lab</code>	Creates a lab namespace to isolate resources.	Copy / load
14	Namespaces	<code>kubectl label namespace ww-lab environment=training</code>	Adds a label to the namespace for classification and filtering.	Copy / load
15	Context	<code>kubectl config set-context --current --namespace=ww-lab</code>	Sets ww-lab as the default namespace for the current context.	Copy / load
16	Pods	<code>kubectl get pods -A</code>	Lists pods across all namespaces, including kube-system.	Copy / load
17	Pods	<code>kubectl get pods</code>	Lists pods in the current namespace.	Copy / load

#	Category	Command	Explanation	Action
18	Pods	<code>kubectrl get pods -o wide</code>	Shows pods with private IP and assigned node.	Copy / load
19	Pods	<code>kubectrl get pods --show-labels</code>	Lists pods with labels to understand selectors and service relationships.	Copy / load
20	Workloads	<code>kubectrl create deployment web --image=nginx:1.27</code>	Creates a Deployment named web using the nginx image.	Copy / load
21	Workloads	<code>kubectrl get deployments</code>	Lists deployments and available replicas.	Copy / load
22	Workloads	<code>kubectrl describe deployment web</code>	Shows Deployment details, image, strategy and replicas.	Copy / load
23	Workloads	<code>kubectrl scale deployment web --replicas=3</code>	Scales the Deployment to three replicas distributed across nodes.	Copy / load

#	Category	Command	Explanation	Action
24	Workloads	<code>kubectl get rs</code>	Lists ReplicaSets created by the Deployment.	Copy / load
25	Networking/Services	<code>kubectl expose deployment web --port=80 --target-port=80</code>	Creates a ClusterIP Service to route internal traffic to pods.	Copy / load
26	Networking/Services	<code>kubectl get svc</code>	Lists services and internal cluster IPs.	Copy / load
27	Networking/Services	<code>kubectl describe svc web</code>	Shows selector, ports and endpoints of the web service.	Copy / load
28	Networking/Services	<code>kubectl get endpoints</code>	Lists private endpoints targeted by the Service.	Copy / load
29	Troubleshooting	<code>kubectl logs -l app=web</code>	Queries logs from pods matching the app=web label.	Copy / load

#	Category	Command	Explanation	Action
30	Troubleshooting	<code>kubectl describe pod web-7d8b</code>	Shows events, state and details for the simulated pod.	Copy / load
31	Metrics	<code>kubectl top pods</code>	Shows simulated CPU and memory usage by pod.	Copy / load
32	Operations	<code>kubectl exec deploy/web -- nginx -v</code>	Runs a command inside the Deployment container.	Copy / load
33	Updates	<code>kubectl set image deployment/web nginx=nginx:1.28</code>	Updates the Deployment image and triggers a rolling update.	Copy / load
34	Updates	<code>kubectl rollout status deployment/web</code>	Checks whether the rollout completed successfully.	Copy / load
35	Updates	<code>kubectl rollout history deployment/web</code>	Shows the Deployment revision history.	Copy / load

#	Category	Command	Explanation	Action
36	Updates	<code>kubectrl rollout undo deployment/web</code>	Rolls the Deployment back to the previous version.	Copy / load
37	Configuration	<code>kubectrl create configmap web-config --from-literal=ENV=training</code>	Creates a ConfigMap with non-sensitive configuration.	Copy / load
38	Configuration	<code>kubectrl get configmap</code>	Lists ConfigMaps in the current namespace.	Copy / load
39	Configuration	<code>kubectrl describe configmap web-config</code>	Shows keys and values in the simulated ConfigMap.	Copy / load
40	Secrets	<code>kubectrl create secret generic web-secret --from-literal=API_KEY=demo</code>	Creates a generic Secret to represent sensitive data.	Copy / load
41	Secrets	<code>kubectrl get secret</code>	Lists Secrets without exposing values.	Copy / load

#	Category	Command	Explanation	Action
42	Secrets	<code>kubectl describe secret web-secret</code>	Describes the Secret while masking sensitive values.	Copy / load
43	Autoscaling	<code>kubectl autoscale deployment web --cpu-percent=70 --min=2 --max=6</code>	Creates a simulated HPA to scale by CPU.	Copy / load
44	Autoscaling	<code>kubectl get hpa</code>	Lists the HPA, CPU target and current replicas.	Copy / load
45	Autoscaling	<code>kubectl describe hpa web</code>	Shows metric details, minimum and maximum replicas.	Copy / load
46	Ingress	<code>kubectl apply -f ingress-web.yaml</code>	Applies a simulated Ingress manifest to expose HTTP.	Copy / load
47	Ingress	<code>kubectl get ingress</code>	Lists Ingress, host, class and entry address.	Copy / load

#	Category	Command	Explanation	Action
48	Ingress	<code>kubectl describe ingress web-ingress</code>	Describes host/path rules that route to the web Service.	Copy / load
49	Troubleshooting	<code>kubectl get events</code>	Lists recent events useful for diagnosing scheduling and startup.	Copy / load
50	Cleanup	<code>kubectl delete namespace ww-lab</code>	Deletes the namespace and cleans up lab resources.	Copy / load

Terraform Most-Used Commands

FREE

Terraform CLI

AWS / Azure / GCP / Oracle

Lite / Pro / Pro Plus coming soon

Terraform: FREE interactive emulator for AWS, Azure, GCP, and Oracle

Learn Terraform step by step with a visual learning-mode

emulator. It includes guided challenges, a simulated terminal, infrastructure canvas output, and commands ready to copy or run.

40 explained Terraform commands

Use Copy to send the command to your clipboard or Run to load it into the emulator on this same page.

#	COMMAND	EXPLANATION	COPY	RUN
1	terraform init	Initializes the working directory and downloads required providers/modules.	Copy	Run
2	terraform init -upgrade	Upgrades providers and modules while respecting version constraints.	Copy	Run
3	terraform init -backend=false	Initializes without configuring a remote backend; useful for local validation or CI.	Copy	Run
4	terraform fmt	Formats .tf files using Terraform standard style.	Copy	Run
5	terraform fmt -recursive	Formats the current directory and all subdirectories.	Copy	Run
6	terraform validate	Validates syntax, types and internal structure without creating resources.	Copy	Run
7	terraform validate -json	Returns validation results as JSON for automated integrations.	Copy	Run

#	COMMAND	EXPLANATION	COPY	RUN
8	terraform plan	Previews the changes Terraform would make to the infrastructure.	Copy	Run
9	terraform plan -out=tfplan	Saves the plan so it can be applied later in a controlled way.	Copy	Run
10	terraform plan -destroy	Previews destruction of resources managed by the state.	Copy	Run
11	terraform plan -var="env=dev"	Runs the plan using a variable passed from the command line.	Copy	Run
12	terraform plan -var-file="dev.tfvars"	Runs the plan using variables from a tfvars file.	Copy	Run
13	terraform apply	Applies proposed changes and creates, modifies or deletes resources.	Copy	Run
14	terraform apply tfplan	Applies a plan previously saved with -out.	Copy	Run
15	terraform apply -auto-approve	Applies without interactive approval; use only in labs or controlled CI/CD.	Copy	Run
16	terraform destroy	Destroys infrastructure managed by the current state.	Copy	Run
17	terraform destroy -auto-approve	Destroys without asking for confirmation; critical command to use carefully.	Copy	Run
18	terraform output	Shows values defined in output blocks.	Copy	Run

#	COMMAND	EXPLANATION	COPY	RUN
19	terraform output -json	Shows outputs as JSON for integrations and scripts.	Copy	Run
20	terraform state list	Lists resources Terraform manages in the current state.	Copy	Run
21	terraform state show aws_instance.demo	Shows detailed attributes for one resource in state.	Copy	Run
22	terraform state mv old new	Renames or moves a resource within state without recreating it.	Copy	Run
23	terraform state rm resource	Removes a resource from state without deleting it from the real cloud.	Copy	Run
24	terraform import resource id	Imports an existing resource so Terraform can manage it.	Copy	Run
25	terraform refresh	Refreshes state from provider data; newer workflows prefer plan/apply.	Copy	Run
26	terraform providers	Shows providers required by the configuration and modules.	Copy	Run
27	terraform providers lock	Generates or updates the provider lock file for repeatable runs.	Copy	Run
28	terraform version	Shows the installed Terraform version and relevant provider versions.	Copy	Run
29	terraform console	Opens an interactive console to evaluate Terraform expressions.	Copy	Run

#	COMMAND	EXPLANATION	COPY	RUN
30	terraform graph	Generates a DOT dependency graph between resources.	Copy	Run
31	terraform workspace list	Lists available workspaces.	Copy	Run
32	terraform workspace new dev	Creates a workspace to separate state by environment.	Copy	Run
33	terraform workspace select dev	Switches to the dev workspace.	Copy	Run
34	terraform workspace show	Shows the active workspace.	Copy	Run
35	terraform taint resource	Marks a resource to be recreated on the next apply.	Copy	Run
36	terraform untaint resource	Removes the taint mark from a resource.	Copy	Run
37	terraform login	Logs in to use Terraform Cloud or HCP Terraform.	Copy	Run
38	terraform logout	Logs out of the saved Terraform Cloud/HCP session.	Copy	Run
39	terraform test	Runs native Terraform tests when test files exist.	Copy	Run
40	terraform modules	Shows modules used by the configuration when supported by the CLI.	Copy	Run

The emulator is educational: it does not request credentials, connect to real clouds, or create real resources.

50 Microsoft Excel Functions

Learn Excel easily with guided practice and interactive challenges

How to use this learning page

The goal is not to memorize all of Excel. The goal is to practice with small, clear exercises. Each challenge shows what to do, where to write the formula, what result to expect and why that result is correct.

1. Review the data Look at the challenge table and understand what needs to be calculated.

2. Write the formula Use the hint or try to solve it by yourself.

3. Run and validate The emulator calculates, validates and explains the result.

4. Move to the next challenge Learn a new function with

progressive practice.

Embedded Excel emulator: guide and challenges

This shortcode activates the emulator in **guided learning** mode, ideal for teaching Excel from scratch with challenges.

Recommended fast learning path

Level 1: BasicsSUM, AVERAGE, MIN, MAX and COUNT for simple calculations.

Level 2: ConditionsIF, IFS, SUMIF and COUNTIF to make decisions with data.

Level 3: Clean dataTRIM, TEXT, CONCAT, LEFT, RIGHT and SUBSTITUTE to organize information.

Level 4: LookupsVLOOKUP, XLOOKUP, INDEX and MATCH to connect tables.

Level 5: FinancePMT, FV, PV, NPV and IRR to explain loans, investments and profitability.

Level 6: AccountingNet profit, balance, inflows, outflows and available inventory.

50 Excel commands, functions and formulas to practice

Copy each example, paste it into the emulator and review the result. The table adapts to phones, tablets and desktop screens.

#	Category	Command / function	Copy example	Use	Practical explanation	Copy
1	Basics	SUM	=SUM(B2:B6)	Adds a range of values.	Useful for adding sales, expenses, inventory or any numeric list.	Copy
2	Basics	AVERAGE	=AVERAGE(B2:B6)	Calculates the average.	Good for grades, sales, costs or time averages.	Copy
3	Basics	MIN	=MIN(B2:B6)	Finds the lowest value.	Helps detect the lowest cost, minimum sale or lowest result.	Copy
4	Basics	MAX	=MAX(B2:B6)	Finds the highest value.	Helps identify the highest sale, highest cost or best result.	Copy
5	Basics	COUNT	=COUNT(B2:B20)	Counts cells containing numbers.	Counts numeric records without including text.	Copy
6	Basics	COUNTA	=COUNTA(A2:A20)	Counts non-empty cells.	Useful for counting records, names, products or captured entries.	Copy
7	Conditions	IF	=IF(B2>=70,"Passed","Review")	Evaluates a condition and returns a result.	Ideal for status lights, approvals, diagnostics and validations.	Copy
8	Conditions	IFS	=IFS(B2>=90,"Excellent",B2>=70,"Good",B2<70,"Review")	Evaluates several conditions in order.	Classifies results without many nested IF formulas.	Copy
9	Conditions	SUMIF	=SUMIF(A2:A20,"Sales",B2:B20)	Adds values that meet one condition.	Useful for adding sales, expenses or transactions by category.	Copy
10	Conditions	SUMIFS	=SUMIFS(C2:C50,A2:A50,"Sales",B2:B50,"January")	Adds values with multiple conditions.	Great for reports by category, month, customer or region.	Copy
11	Conditions	COUNTIF	=COUNTIF(B2:B50,">=70")	Counts cells that meet a condition.	Counts passed students, low stock items or critical tickets.	Copy

#	Category	Command / function	Copy example	Use	Practical explanation	Copy
12	Conditions	COUNTIFS	=COUNTIFS(A2:A50,"Sales",B2:B50,"January")	Counts records with multiple conditions.	Useful for audits, reports and segmented analysis.	Copy
13	Conditions	AVERAGEIF	=AVERAGEIF(A2:A50,"Sales",B2:B50)	Averages values based on one condition.	Shows average sales, costs or results by group.	Copy
14	Formatting and numbers	ROUND	=ROUND(B2,2)	Rounds a number to a specific number of decimals.	Very useful for amounts, percentages, taxes and indicators.	Copy
15	Formatting and numbers	ROUNDUP	=ROUNDUP(B2,0)	Rounds up.	Useful when minimum coverage, packages or full units are required.	Copy
16	Formatting and numbers	ROUNDDOWN	=ROUNDDOWN(B2,0)	Rounds down.	Good for conservative estimates or whole-unit calculations.	Copy
17	Formatting and numbers	ABS	=ABS(B2)	Converts a negative number into positive.	Useful for showing differences, losses or variations without a negative sign.	Copy
18	Dates	TODAY	=TODAY()	Shows the current date.	Useful for dynamic reports, due dates and daily controls.	Copy
19	Dates	NOW	=NOW()	Shows the current date and time.	Useful for logs, records and timestamps.	Copy
20	Dates	DATE	=DATE(2026,6,16)	Creates a date using year, month and day.	Avoids format issues when building dates.	Copy
21	Dates	YEAR	=YEAR(A2)	Extracts the year from a date.	Useful for annual reports and year grouping.	Copy
22	Dates	MONTH	=MONTH(A2)	Extracts the month from a date.	Useful for classifying sales, expenses or transactions by month.	Copy

#	Category	Command / function	Copy example	Use	Practical explanation	Copy
23	Dates	DAY	=DAY(A2)	Extracts the day from a date.	Useful for daily analysis or due dates.	Copy
24	Text	TEXT	=TEXT(B2,"\$#,##0.00")	Converts values to formatted text.	Useful for presenting amounts, dates or percentages clearly.	Copy
25	Text	CONCAT	=CONCAT(A2," - ",B2)	Joins text from multiple cells.	Creates combined keys, labels or descriptions.	Copy
26	Text	LEFT	=LEFT(A2,3)	Extracts characters from the beginning.	Useful for prefixes, codes or abbreviations.	Copy
27	Text	RIGHT	=RIGHT(A2,4)	Extracts characters from the end.	Useful for endings, last digits or codes.	Copy
28	Text	MID	=MID(A2,2,5)	Extracts text from a specific position.	Useful for splitting parts of keys or identifiers.	Copy
29	Text	LEN	=LEN(A2)	Counts characters.	Helps validate code, SKU, name or ID lengths.	Copy
30	Text	TRIM	=TRIM(A2)	Removes extra spaces.	Very useful for cleaning data pasted from other systems.	Copy
31	Text	UPPER	=UPPER(A2)	Converts text to uppercase.	Normalizes names, codes or records.	Copy
32	Text	LOWER	=LOWER(A2)	Converts text to lowercase.	Standardizes emails, labels or data.	Copy
33	Text	FIND	=FIND("@",A2)	Finds the position of text inside another text.	Useful for validating emails or splitting information.	Copy
34	Text	SUBSTITUTE	=SUBSTITUTE(A2," ","-")	Replaces specific text.	Useful for cleaning data or creating slugs/codes.	Copy

#	Category	Command / function	Copy example	Use	Practical explanation	Copy
35	Lookup	VLOOKUP	=VLOOKUP(A2,Products!A:D,4,FALSE)	Looks up a value in the first column of a table.	Useful for bringing prices, descriptions or related data.	Copy
36	Lookup	XLOOKUP	=XLOOKUP(A2,Products!A:A,Products!D:D,"Not found")	Looks up values flexibly.	Modern alternative for clearer and safer lookups.	Copy
37	Lookup	INDEX	=INDEX(B2:B20,3)	Returns a value based on its position.	Extracts specific data from a list.	Copy
38	Lookup	MATCH	=MATCH(E2,A2:A20,0)	Finds the position of a value.	Commonly used with INDEX for advanced lookups.	Copy
39	Dynamic data	FILTER	=FILTER(A2:C50,B2:B50="Active")	Filters data that meets a condition.	Ideal for clean views of customers, products or transactions.	Copy
40	Dynamic data	SORT	=SORT(A2:C50,2,-1)	Sorts data by column.	Useful for rankings, top sales or priorities.	Copy
41	Dynamic data	UNIQUE	=UNIQUE(A2:A50)	Returns unique values.	Useful for customer, category or product lists without duplicates.	Copy
42	Errors	IFERROR	=IFERROR(B2/C2,"Review data")	Shows a message if there is an error.	Avoids confusing results like #DIV/0! or #N/A.	Copy
43	Finance	PMT	=PMT(12%/12,24,-50000)	Calculates a loan payment.	Useful for monthly credit, financing or loan payments.	Copy
44	Finance	FV	=FV(8%/12,36,-1000)	Calculates future value.	Estimates future savings or investment value.	Copy
45	Finance	PV	=PV(10%/12,24,-2500)	Calculates present value.	Shows the current value of future payments.	Copy
46	Finance	NPV	=NPV(10%,B2:B6)	Calculates net present value.	Helps evaluate investment projects.	Copy

#	Category	Command / function	Copy example	Use	Practical explanation	Copy
47	Finance	IRR	=IRR(B2:B7)	Calculates internal rate of return.	Useful for analyzing investment profitability.	Copy
48	Finance	Percentage	=B2/B3	Calculates ratios or percentages.	Example: margin, progress, compliance or share.	Copy
49	Accounting	Net profit	=B2-B3-B4-B5	Subtracts costs, expenses and taxes from income.	Explains real profit for a period.	Copy
50	Accounting	Balance	=SUM(B2:B10) - SUM(C2:C10)	Compares debit vs credit or inflows vs outflows.	Useful for simple balances and reconciliations.	Copy
51	Inventory	Available stock	=B2-C2+D2	Calculates final inventory.	Adds entries, subtracts exits and shows availability.	Copy