buf Protobuf toolkit

proto files buf.yaml module → `buf lint / format` → **Checked source** style ok → `buf breaking` → **Compatible** vs. last release → `buf generate` → **Generated code** buf.gen.yaml

CONCEPTS

buf reads buf.yaml for modules, lint and breaking rules, and buf.gen.yaml for code generation. Inputs default to the current directory.

An input can be a directory, a git ref, a tarball, an image file or a BSR module: the same argument works for build, lint, breaking and generate.

SETUP AND CONFIG

`buf --version`
Print the installed version

`buf config init`
Create a buf.yaml here

`buf config ls-lint-rules`
List available lint rules

`buf config ls-breaking-rules`
List available breaking rules

`buf config migrate`
Upgrade config files to v2

`buf <command> --help`
Help for any command

BUILD

`buf build`
Compile all protos in the module

`buf build -o image.binpb`
Write a binary image

`buf build --as-file-descriptor-set -o fds.binpb`
Write a plain FileDescriptorSet

LINT

`buf lint`
Lint the current module

`buf lint --path <file.proto>`
Lint selected files only

`// buf:lint:ignore <RULE_ID>`
Silence one rule above a line

FORMAT

`buf format -w`
Rewrite files in place

`buf format -d`
Show a diff instead

`buf format -d --exit-code`
Fail if anything is unformatted (CI)

BREAKING CHANGES

`buf breaking --against '.git#branch=main'`
Compare with main in git

`buf breaking --against <dir>`
Compare with another directory

`buf breaking --against image.binpb`
Compare with a saved image

`buf breaking --against <input> --path <dir>`
Check only part of the module

Breaking categories

Category	Catches changes that break
`FILE`	Generated source per file (default)
`PACKAGE`	Generated source per package
`WIRE_JSON`	Wire and JSON encoding
`WIRE`	Wire encoding only

GENERATE

`buf generate`
Run plugins from buf.gen.yaml

`buf generate --template <file.yaml>`
Use another template file

GENERATE (cont.)

`buf generate --path <dir>`
Generate for part of the module

DEPENDENCIES AND MODULES

`buf dep update`
Resolve deps and write buf.lock

CONVERT AND CALL

`buf convert <input> --type <pkg.Msg> --from <file>.json --to <file>.binpb`
Convert a message between formats

`buf curl --list-services <url>`
List services via reflection

`buf curl -d '<json>' <url>/<pkg.Svc>/<Method>`
Call an RPC with a JSON body

`buf curl --schema <dir> <url>/<pkg.Svc>/<Method>`
Use local protos, no reflection

CONVERT AND CALL (cont.)

`buf curl --protocol grpc <url>/<pkg.Svc>/<Method>`
Speak gRPC (default is Connect)

CONFIG FILES

buf.yaml

```
version: v2
modules:
  - path: proto
deps:
  - buf.build/googleapis/
googleapis
lint:
  use:
    - STANDARD
  except:
    - PACKAGE_VERSION_SUFFIX
breaking:
  use:
    - FILE
```

buf.gen.yaml

```
version: v2
clean: true
plugins:
  - remote: buf.build/
protocolbuffers/go
    out: gen/go
    opt:
paths=source_relative
  - local: protoc-gen-go-
grpc
    out: gen/go
inputs:
  - directory: proto
```