

Run groovy x.groovy groovy -e 'println 1+1' -n / -p / -i: line loop, print, in-place edit #!/usr/bin/env groovy (shebang) groovysh groovyConsole groovyc -d out *.groovy sdk install groovy (SDKMAN!) @Grab('g:a:v') @GrabResolver JDK 17+ for 6.0 (5.x: 11+, 3.x/4.x: 8+)	Control flow if / else if / else for (x in xs) for (int i, x in xs) do { } while (c) while (c) { } break continue label: switch (x) { case 1..5: case ~/re/: case Integer: case [1,2]: case { it>3 } : default: } def r = switch (x) { case 1 -> 'a'; case 2 -> { yield 'b' }; default -> 'c' } try { } catch (any) { } catch (A B e) { } finally { } try (r = open()) { } if (o instanceof A a) assert a == b : 'msg' (power assert shows values) Closures { a, b -> a + b } { it * 2 } c.call(1) c(1) c.curry(1) rcurry ncurry(i, x) c.memoize() f >> g f << g c.trampoline() c.maximumNumberOfParameters this / owner / delegate ; resolveStrategy = DELEGATE_FIRST @DelegatesTo(Foo) Closure c closure as SAM: Runnable r = { } (list, c) as Iface lambda (x) -> x * 2 Math::abs String::length c.rehydrate(d, o, t) with { } tap { } Object orientation class P { String name; int age = 0; def m(a = 1) { } } new P(name: 'x', age: 2) p.name p.'name' p['name'] @Canonical @Immutable @ToString(includeNames=true) @EqualsAndHashCode @TupleConstructor @MapConstructor @Builder @Delegate @Lazy @Memoized @Singleton @Sortable trait T { String id; def hi() { 'hi ' + id } } class C implements T record R(int a, String b) { } r.copyWith(a: 2) sealed interface Z permits A, B { } non-sealed class enum E { A, B; def m() { } } E.valueOf('A') 'A' as E @NamedVariant @InheritConstructors @PackageScope	GDK I/O and time f.text f.readLines() f.eachLine { } f << 'more' f.withWriter { w -> w << 'x' } f.eachFileRecurse { } 'ls -l'.execute().text ['a','b'].execute() p1.pipeline(p2) p.waitForOrKill(1000) p.onExit() LocalDate.now().plusDays(1) d1..d2 Duration.ofMinutes(5) use(TimeCategory) { 3.days + 2.hours } new Date().format('yyyy-MM-dd') java.time default import Data and modules new JsonSlurper().parseText(s) JsonOutput.toJson(m) new JsonBuilder(); json { a 1; b { c 2 } }; json.toPrettyString() new XmlSlurper().parseText(x).a.b.@id GPath: *. ** depthFirst new MarkupBuilder().root { item(id: 1, 'text') } new YamlSlurper().parseText(y) new TomlSlurper().parseText(t) new CsvSlurper().parseText(c) (incubating, 6.0) Sql.withInstance(url, user, pass, drv) { sql -> sql.eachRow('select 1') { } } GQ { from p in plants where p.h > 3 orderby p.n select p.n } new SimpleTemplateEngine().createTemplate(t).make(m) HttpBuilder.http { get '/x' } (incubating, 6.0) Concurrency (6.0) def a = async { 42 } await a (incubating) Awaitable.all(a, b) any first allSettled yield return x (generator) for await (x in ch) AsyncChannel, BroadcastChannel, AsyncScope (structured) list.collectParallel { } findAllParallel eachParallel def ag = Agent.of(0); ag.send { it + 1 } Actor reactor / stateful @ActiveObject virtual threads automatic on JDK 21+					
Syntax // line /* block */ /** doc */ ; () return public are optional def x = 1 var y = 2 val z = 3 (6.0) final k = 'k' int i = 0 def (a, b) = [1, 2] def (h, *) = list (rest binder, 6.0) 'quoted id()', map.'a-b' default imports: java.lang.util/io/net, groovy.lang.util, BigDecimal, BigInteger import a.B as C import static a.B.* import module java.base (6.0) Strings 'plain' "hi \${x} \$y.z" '''multi''' """multi \${x}""" /\$lashy\$d+/ \$/dollar \$ slashy/\$ lazy: "\${-> x}" GString != String as map key s.stripIndent() s.tr('a-c','A-C') s.padLeft(5,'0') s[1..-1] s.reverse() s*3 s - 'x' s.toList() s.split(/,/) s.capitalize() s.replaceAll(/d/){it*2} Numbers and truth 1.5 is BigDecimal; 1.5d Double; 1.5f Float suffix: 1G BigInt 1L 1I 2.5G 1_000 0b11 0x1F 7.intdiv(2) 7 % 3 2**10 7/2 = 3.5 (BigDecimal) int < long < BigInt < BigDecimal < double false: null 0 '' [] [:] empty iterator, no regex match true: any other value; override asBoolean() if (list) ... x ?: 'default' Collections [1,2] [a:1] 1..5 1..<lt;5 'a'..'e'="" []="" as="" set<br=""></lt;5>l[0] l[-1] l[1..-1] l << 3 l + [4] l - [1] l*.name m.each { k, v -> } l.eachWithIndex { e, i -> } collect findAll find inject(0){a,b->a+b} sum() groupBy countBy any{ } every{ } sort{ } unique() collate(2) withIndex() indexed() take(n) drop(n) collectEntries{[it.k,it.v]} m.subMap(['a']) obj.with { a = 1 } obj.tap { a = 1 } Operators ?. safe ?: Elvis ?= Elvis assign .@f field .&m method ptr ::m method ref *. spread *l spread list <=> compare in / !in === as l?[0] ==> implication =~ find =~ match ~/re/ pattern + plus - minus * multiply / div ** power [] getAt/putAt << leftShift <=> compareTo in isCase () call += plusAssign (6.0) precedence: () [] . ? . > + -- > ** > ! ~ > * / % > + - < << >> < <= in as > == <=> > & ^ > && > > ?: > += ...	Typing @TypeChecked: compile-time checks, flow typing @CompileStatic: checked + static bytecode (fast) @CompileDynamic: opt out inside a static class @TypeChecked(extensions='my.Ext') @ClosureParams(FirstParam) @DelegatesTo checkers: RegexChecker FormatStringChecker NullChecker ModifiesChecker PurityChecker ... @Requires({ x > 0 }) @Ensures({ result >= 0 }) Metaproprogramming methodMissing(n, args) propertyMissing(n) invokeMethod getProperty GroovyInterceptable String.metaClass.shout = { -> delegate.toUpperCase() } use(TimeCategory) { 2.hours.ago } META-INF/groovy/org.codehaus.groovy.runtime.ExtensionModule @ASTTest(phase=SEMANTIC_ANALYSIS, value={ }) phases: INITIALIZATION PARSING CONVERSION SEMANTIC_ANALYSIS CANONICALIZATION INSTRUCTION_SELECTION CLASS_GENERATION OUTPUT FINALIZATION respondsTo(o, 'm') o.metaClass.methods						
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