

QML Quick Reference

Basic Syntax

```
// Simple QML example
import QtQuick 2.9
Rectangle {
    width: 640
    height: 480
    Text {
        anchors.centerIn: parent
        text: "Hello, world!"
    }
    MouseArea {
        anchors.fill: parent
        onClicked: {
            Qt.quit()
        }
    }
}
```

QML Basic Types

bool	double	enumeration
int	list	real
string	url	var

Qt Quick Basic Types ("import QtQuick 2.9")

color	date	font
matrix4x4	point	quaternion
rect	size	vector2d
vector3d	vector4d	

Qt Quick XmlListModel QML Types ("import QtQuick.XmlListModel 2.0")

XmlListModel	XmlRole
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Qt Quick Window QML Types ("import QtQuick.Window 2.3")

CloseEvent	StackLayout
Screen	Window

Qt Quick Object Types ("import QtQuick 2.9")

Visual Types

Accessible	Item	SpriteSequence
AnimatedImage	ItemLoader	SystemPalette
AnimatedSprite	Rectangle	Text
BorderImage	Repeater	TextEdit
FontLoader	Rotation	TextInput
Gradient	Scale	Transform
GradientStop	Screen	Translate
Image	Sprite	Window

States, Transitions and Animations

AnchorAnimation	ParallelAnimation	PathCurve
AnchorChanges	ParentAnimation	PathInterpolator
Animation	ParentChange	PathLine
Controller	Path	PathPercent
Behavior	PathAnimation	PathQuad
ColorAnimation	PathArc	PathSvg
NumberAnimation	PathAttribute	PauseAnimation
OpacityAnimator	PathCubic	PropertyAction

Model/View

GridView	VisualDataGroup
ListElement	VisualDataModel
ListModel	VisualItemModel
ListView	XmlListModel
Package	XmlRole
PathView	

Convenience

Binding	Matrix4x4
Connections	OpenGLInfo
FontMetrics	TextMetrics
GraphicsInfo	Timer
ItemGrabResult	WorkerScript
Loader	

User Input

DoubleValidator	IntValidator
Drag	KeyEvent
DragEvent	KeyNavigation
DropArea	Keys
EnterKey	MouseArea
Flickable	MouseEvent
Flipable	MultiPoint
FocusScope	TouchArea

Positioning

Column	Flow
Grid	LayoutMirroring
Positioner	Row

Qt Test

Sequence	SignalSpy
TestCase	TouchEvent

Graphical Effects

BorderImage	ShaderEffect
BorderImageMesh	Source
Flipable	
GridMesh	
ShaderEffect	

Canvas

Canvas	
CanvasGradient	
CanvasImageData	
CanvasPixelArray	
Context2D	
TextMetrics	

Qt Quick Dialogs QML Types ("import QtQuick.Dialogs 1.2")

ColorDialog	FileDialog	MessageDialog
Dialog	FontDialog	

Qt Quick Layouts QML Types ("import QtQuick.Layouts 1.3")

ColumnLayout	Layout	StackLayout
GridLayout	RowLayout	

Other QML Modules

Qt.labs.calendar 1.0	QtQuick.Controls.
Qt.labs.folderlist	Styles.Flat 1.0
model 2.2	QtQuick.Controls.
Qt.labs.platform 1.0	Universal 2.2
Qt.labs.settings 1.0	QtQuick.Extras 1.4
Qt.labs.	QtQuick.Local
sharedimage 1.0	Storage 2.0
Qt3D.Animation 2.9	QtQuick.Scene2D 2.9
Qt3D.Core 2.9	QtQuick.Scene3D 2.0
Qt3D.Extras 2.9	QtQuick.Templates 2.2
Qt3D.Input 2.1	QtQuick.Virtual
Qt3D.Logic 2.0	Keyboard.Styles 1.3
Qt3D.Render 2.9	QtScxml 5.8
QtBluetooth 5.9	QtSensors 5.9
QtCanvas3D 1.1	QtTest 1.2
QtCharts 2.2	QtWayland.
QtData	Compositor 1.0
Visualization 1.3	QtWebChannel 1.0
QtGamepad 1.0	QtWebEngine 1.5
QtGraphical	QtWebSockets 1.1
Effects 1.0	QtWebView 1.1

QtLocation 5.9
QtMultimedia 5.9
QtNfc 5.9
QtPositioning 5.9
QtPurchasing 1.0
QtQml 2.8
QtQml.Models 2.3
QtQml.State
Machine 1.0
QtQuick.Controls 2.2
QtQuick.Controls.
Material 2.2
QtQuick.Controls.
Styles 1.4

Qt Quick Controls QML Types ("import QtQuickControls 1.5" and "import QtQuick.Controls 2.2")

AbstractButton ⁽²⁾	Drawer ⁽²⁾	RadioDelegate ⁽²⁾	Switch	Tumbler ⁽²⁾
Action ⁽¹⁾	ExclusiveGroup ⁽¹⁾	RangeSlider ⁽²⁾	SwitchDelegate ⁽²⁾	
ApplicationWindow	Frame ⁽²⁾	RoundButton ⁽²⁾	Tab ⁽¹⁾	Notes:
BusyIndicator	GroupBox	ScrollBar ⁽²⁾	TabBar ⁽²⁾	(1) - Qt Quick
Button	ItemDelegate ⁽²⁾	ScrollIndicator ⁽²⁾	TabButton ⁽²⁾	Controls 1.x only.
ButtonGroup ⁽²⁾	Label	ScrollView	TabView ⁽¹⁾	(2) - Qt Quick
Calendar ⁽¹⁾	Menu	Slider	TableView ⁽¹⁾	Controls 2.x only.
CheckBox	MenuBar ⁽¹⁾	SpinBox	TableView	
CheckDelegate ⁽²⁾	MenuItem	SplitView ⁽¹⁾	Column ⁽¹⁾	
ComboBox	MenuSeparator	Stack ⁽¹⁾	TextArea	
Container ⁽²⁾	Page ⁽²⁾	StackView	TextField	
Control ⁽²⁾	PageIndicator ⁽²⁾	StackView	ToolBar	
DelayButton ⁽²⁾	Pane ⁽²⁾	Delegate ⁽¹⁾	ToolBar	
Dial ⁽²⁾	Popup ⁽²⁾	StatusBar ⁽¹⁾	ToolSeparator ⁽²⁾	
Dialog ⁽²⁾	ProgressBar	SwipeDelegate ⁽²⁾	ToolTip ⁽²⁾	
DialogButtonBox ⁽²⁾	RadioButton	SwipeView ⁽²⁾	TreeView ⁽¹⁾	

QML Item Properties

activeFocus	anchors.left	childrenRect.width	layer.samplerName	states
activeFocusOnTab	anchors.leftMargin	childrenRect.x	layer.smooth	transform
anchors	anchors.margins	childrenRect.y	layer.sourceRect	transformOrigin
anchors.align	anchors.right	clip	layer.textureSize	transitions
WhenCentered	anchors.rightMargin	data	layer.textureMirroring	visible
anchors.baseline	anchors.top	enabled	layer.wrapMode	visibleChildren
anchors.baselineOffset	anchors.topMargin	focus	objectName	width
anchors.bottom	anchors.verticalCenter	height	opacity	x
anchors.bottomMargin	anchors.vertical	implicitHeight	parent	y
anchors.centerIn	CenterOffset	implicitWidth	resources	z
anchors.fill	antialiasing	layer.effect	rotation	
anchors.horizontalCenter	baselineOffset	layer.enabled	scale	
anchors.horizontal	children	layer.format	smooth	
CenterOffset	childrenRect.height	layer.mipmap	state	

QML Global Object

■ Qt Object

application	formatDate()	Externally()	rgba()
atob()	formatDate	platform	size()
binding()	Time()	point()	styleHints
btob()	formatTime()	qsTr()	tint()
callLater()	hsia()	qsTrId()	vector2d()
colorEqual()	hsva	qsTrIdNoOp()	vector3d()
create	include()	qsTrNoOp()	vector4d()
Component()	inputMethod	qsTranslate()	
createQml	isQtObject()	qsTranslate	
Object()	lighter()	NoOp()	
darker()	locale()	quaternion()	
exit()	matrix4x4()	quit()	
font()	md5()	rect()	
fontFamilies()	openUrl	resolvedUrl()	

Qmlscene Options

Usage: qmlscene *[options]* filename

Options:

--maximized	Run maximized
--fullscreen	Run fullscreen
--transparent	Make the window transparent
--multisample	Enable multisampling (OpenGL anti-aliasing)
--no-version-detection	Do not try to detect the version of the .qml file
--slow-animations	Run all animations in slow motion
--resize-to-root	Resize the window to the size of the root item
--quit	Quit immediately after starting
--disable-context-sharing	Disable the use of a shared GL context for QtQuick Windows
--desktop	Force use of desktop GL
--gles	Force use of GLES
--software	Force use of software rendering
--scaling	Enable high DPI scaling
--no-scaling	Disable high DPI scaling
--verbose	Print version and graphical diagnostics for the run-time
-I <i>path</i>	Add <i>path</i> to the list of import paths
-P <i>path</i>	Add <i>path</i> to the list of plugin paths
-translation <i>translationfile</i>	Set the language to run in

QML Item Methods

childAt	mapFromGlobal
contains	mapFromItem
forceActiveFocus	mapToItem
grabToImage	nextItemInFocusChain

QML Profiler Options

qmlprofiler *[options]* *[program]* *[program-options]*
qmlprofiler *[options]* -a,-attach <hostname>

Options:

-p,-port <number>	TCP/IP port to use, default is 3768
-o,-output <file>	Save tracing data in <file>
--record <on off>	Controls whether recording starts immediately
--include <feature,...>	Comma-separated list of features to include when recording
--exclude <feature,...>	Comma-separated list of features to exclude when recording
--interactive	Manually control the recording from the command line
--verbose	Print debugging output
-h,-help	Displays help information
-v,-version	Displays version information

Debugging Functions

console.assert	console.profile
console.count	console.profileEnd
console.debug	console.time
console.error	console.timeEnd
console.exception	console.trace
console.info	console.warn
console.log	print

QML Program Options

Usage: qml *[options]* *[files]*

General Options:

-h, -help	Print this usage information and exit
-v, -version	Print the version information and exit
-apptype <i>[core gui widget]</i>	Select which application class to use
	Default is gui
-quiet	Suppress all output
-I <i>[path]</i>	Prepend the given path to the import paths
-f <i>[file]</i>	Load the given file as a QML file
-config <i>[file]</i>	Load the given file as the configuration file
--	Arguments after this one are ignored by the launcher, but may be used within the QML application

GL options:

-desktop	Force use of desktop GL
-gles	Force use of GLES
-software	Force use of software rendering
-scaling	Enable High DPI scaling
-no-scaling	Disable High DPI scaling

Debugging options:

-verbose	Print information about what QML is doing, like specific file URLs being loaded
-translation <i>[file]</i>	Load the given file as the translations file
-dummy-data <i>[directory]</i>	Load QML files from the given directory as context properties
-slow-animations	Run all animations in slow motion
-fixed-animations	Run animations off animation tick rather than wall time

Can make QML files executable on Linux/Unix/POSIX systems by adding first line like the following:

```
#!/usr/bin/env qml
```

QML Environment Variables

QML2_IMPORT_PATH	QSG_ATLAS_NO_BGRA	QT_HIGHDPI_DISABLE_2X
QMLSCENE_DEVICE	_WORKAROUNDS	_IMAGE_LOADING
QMLSCENE_IMPORT_NAME	QSG_ATLAS_OVERLAY	QT_QUICK_BACKEND
QML_ANIMATION_TICK_DUMP	QSG_ATLAS_SIZE_LIMIT	QT_QUICK_CORE_PROFILE
QML_BAD_GUI_RENDER_LOOP	QSG_ATLAS_TRANSIENT	QV4_FORCE_INTERPRETER
QML_CHECK_TYPES	_IMAGE_THRESHOLD	QV4_MM_AGGRESSIVE_GC
QML_DEBUG_LEAK_BACKTRACE	QSG_ATLAS_USE_BGRA	QV4_MM_MAXBLOCK_SHIFT
QML_DISABLE_DISK_CACHE	_FALLBACK	QV4_MM_MAX_CHUNK_SIZE
QML_DISABLE_DISTANCEFIELD	QSG_ATLAS_WIDTH	QV4_MM_STATS
QML_DUMP_ERRORS	QSG_DISTANCEFIELD	QV4_NO_INTERPRETER_STACK
QML_FBO_FLUSH_BEFORE	_ANTIALIASING	_SLOT_ALLOCATION
_DETACH	QSG_FIXED_ANIMATION_STEP	QV4_NO_OPT
QML_FBO_OVERLAY	QSG_INFO	QV4_NO_REALLOC
QML_FORCE_DISK_CACHE	QSG_NO_DEPTH_BUFFER	QV4_NO_SSA
QML_FORCE_THREADED	QSG_NO_STENCIL_BUFFER	QV4_PROFILE_WRITE_PERF_MAP
_RENDERER	QSG_OPENGL_DEBUG	QV4_SHOW_ASM
QML_IMPORT_TRACE	QSG_PREFER_FULLSIZE	QV4_SHOW_IR
QML_LEAK_CHECK	_GLYPHCACHE_TEXTURES	STATECHANGE_DEBUG
QML_LOOKUP_HINTS	QSG_RENDERER_BATCH	
QML_NO_TOUCH_COMPRESSION	_NODE_THRESHOLD	
QML_PARENT_TEST	QSG_RENDERER_BATCH	
QML_PARTICLES_DEBUG	_VERTEX_THRESHOLD	
QML_USE_GLYPHCACHE	QSG_RENDERER_BUFFER	
_WORKAROUND	_STRATEGY	
QML_VISUAL_TOUCH	QSG_RENDERER_DEBUG	
_DEBUGGING	QSG_RENDER_LOOP	
QML_XHR_DUMP	QSG_RENDER_TIMING	
QSG_ANTIALIASING_METHOD	QSG_TRANSIENT_IMAGES	
QSG_ATLAS_HEIGHT	QSG_VISUALIZE	

QML JavaScript Debugger Options

Run application with option
-qmljsdebugger=port:
port from [,*port to*] [*host*:
ip address] [,*block*]