

GOOGLE-ADK DOCUMENTAIO

Overview

Google Agent Development Kit (ADK) is a flexible, modular framework for developing, deploying, and orchestrating AI agents. While optimized for Gemini and the Google ecosystem, ADK is deployment-agnostic, and built for compatibility with other frameworks .

What Makes ADK Different

ADK was designed to make agent development feel more like software development, enabling developers to create, deploy, and orchestrate agentic architectures ranging from simple tasks to complex workflows .

Key Features

Feature	Description	Benefits
Flexible Orchestration	Define workflows using Sequential, Parallel, Loop agents or LLM-driven dynamic routing	Predictable pipelines + adaptive behavior
Multi-Agent Architecture	Build modular, scalable applications by composing specialized agents in hierarchies	Complex coordination and delegation
Rich Tool Ecosystem	Pre-built tools, custom functions, 3rd-party libraries, agents-as-tools	Diverse capabilities and extensibility
Deployment Ready	Containerize and deploy anywhere - local, Vertex AI, Cloud Run, Docker	Production-grade scalability

Built-in Evaluation	Assess agent performance on final responses and execution trajectories	Systematic testing and validation
Safe & Secure	Implement security patterns and best practices in agent design	Trustworthy, reliable workflows

Agent Types

ADK provides three core agent categories built on the BaseAgent

1. LLM Agents (Agent)

Primary Function	Reasoning, Generation, Tool Use
Core Engine	Large Language Model LLM
Determinism	Non-deterministic Flexible)
Primary Use	Language tasks, Dynamic decisions
Best For	Natural language interfaces, complex logic, flexible decision-making

1. Workflow Agents

Sequential Agent

ParallelAgent

LoopAgent

Primary Function	Controlling Agent Execution Flow
Core Engine	Predefined Logic Sequence, Parallel, Loop)
Determinism	Deterministic Predictable)
Primary Use	Structured processes, Orchestration
Best For	Predictable execution patterns, process control

LangGraph Agent Integration Challenge with Google ADK

- The Google ADK agent serves as the main orchestrator.
- A LangGraph agent is integrated into ADK as a **tool**.