# Next-Gen Test Automation: Playwright MCP in Action

* What Is Playwright MCP?
  + Model Context Protocol (MCP) - MCP is an open standard introduced by Anthropic in November 2024. It defines a universal way for AI systems (LLMs) to interact with external tools, services, or data sources—think of it as a standardized USB-C port for AI integration. It enables secure, bidirectional communication via structured protocols
  + Playwright - Playwright is a robust browser automation framework developed by Microsoft and released in January 2020. It enables end-to-end (E2E) testing and browser interactions across Chromium, Firefox, and WebKit with a single API.
  + Bridging the Two: Playwright MCP - Playwright MCP is an MCP server that allows LLMs (like Claude, GitHub Copilot, or other AI agents) to interact with web pages through Playwright—using structured page data rather than visual recognition.
    - Snapshot Mode - Uses accessibility snapshots (semantic tree of the page)
    - Advantages:
      1. Fast (just query the browser’s AX tree).
      2. Deterministic (no guessing based on pixels).
      3. Works across themes/resolutions.
      4. Can directly map elements to Playwright actions (page.click, page.fill, etc).
    - Vision Mode - Uses screenshots or screen pixels.
    - Problems:
      1. Slow (needs constant screenshot captures).
      2. Error-prone (elements shift, resolution changes, theme changes).
      3. Cannot “see” hidden states like accessibility labels or React tree structure.
* Setting Playwright MCP
  + Go to playwright MCP Repository “<https://github.com/microsoft/playwright-mcp>”
  + Install Playwright MCP Server with your client.
  + Open Github Copilot -> Select Agent Mode – Choose the Agent (GPT 4.0, Claude, etc)
  + Click on Copilot -> Tools section -> make sure MCP Server Playwright ticked.