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Advanced Copilot Agent Automation

Build connected AI agents that act across workflows, Microsoft services, and external APIs - 1 day

FA-0029 · 1 day

Agentic & Generative AI · Automation, RPA & Power Platform

Introduction

The real value of an AI agent emerges when it can do more than answer questions. An advanced business agent needs to retrieve information, call services, initiate workflows, exchange structured data with external systems, and complete controlled actions on behalf of a user. That requires combining the conversational and orchestration capabilities of Microsoft Copilot Studio with the automation capabilities of Power Automate and the integration flexibility of APIs.

This one-day advanced course focuses on building those connected solutions. Participants will work beyond basic agent creation and concentrate on how Copilot Studio agents interact with Power Automate flows, Microsoft services, connectors, and REST API endpoints. The course examines how data moves between an agent and an automation, how input and output parameters are designed, and how authentication, error handling, and response structures affect the reliability of the overall solution.

Microsoft currently supports several integration patterns within Copilot Studio, including Power Platform connectors, HTTP requests, REST API tools, custom connectors, and agent flows. Existing Power Automate cloud flows can also form part of agent-based integration architectures. Power Platform connectors provide a common integration layer across Copilot Studio and Power Automate, while custom connectors can expose stable REST APIs as reusable operations.

The course deliberately assumes that participants already know the underlying products. Time will not be spent teaching basic Power Automate flow creation, introductory Copilot Studio concepts, or API fundamentals. Instead, the day concentrates on combining those skills into more advanced agent-driven automation solutions. The instructor has **over 30 years of industry experience** and will deliver the subject using practical, industry-demanded approaches rather than an academic treatment of the technologies.

Learning outcomes

By the end of the course, participants should be able to:

- Build advanced agents in Microsoft Copilot Studio that invoke external actions.
- Integrate Copilot Studio agents with Power Automate.
- Design input and output contracts between agents and automation flows.
- Use Microsoft service connectors within agent-driven workflows.
- Invoke REST API endpoints from Power Automate.
- Use custom connectors where reusable API integration is required.
- Configure API authentication and authorization appropriately.
- Pass structured data between agents, flows, connectors, and external services.
- Design error handling and response management for agent-driven automation.
- Evaluate when to use connectors, HTTP requests, custom connectors, or agent flows.
- Apply appropriate security and governance controls to integrated agent solutions.

Prerequisites

Participants are expected to have **working, hands-on experience** with the core technologies before attending this advanced course.

- Working experience building and configuring agents in Microsoft Copilot Studio.
- Working experience creating and managing Power Automate cloud flows.
- Working knowledge of Microsoft Power Platform connectors.
- Practical experience working with Microsoft 365 services and their associated connectors.
- Understanding of REST APIs and API endpoints.
- Understanding of HTTP methods including GET, POST, PUT, PATCH, and DELETE.
- Familiarity with JSON request and response structures.
- Familiarity with HTTP headers, query parameters, and request bodies.
- Working knowledge of API authentication concepts.
- Familiarity with Microsoft Entra ID authentication concepts is beneficial.
- Understanding of variables, conditions, expressions, and data transformation in Power Automate.
- This course is not intended for participants who require introductory training in Copilot Studio, Power Automate, or APIs.

Training outline

1. Advanced Copilot Studio Agent Architecture

Agent Design for Automation

1. Agent responsibilities
2. Tools and actions
3. Input and output design
4. Generative orchestration
5. Transaction boundaries

Agent-to-Automation Patterns

1. Agent flows
2. Power Automate integration
3. Connector-based actions
4. REST API tools
5. Synchronous and asynchronous operations

2. Integrating Copilot Studio with Power Automate

Agent-Triggered Automation

1. Flow invocation
2. Input parameters
3. Dynamic values
4. Output parameters
5. Returning results to the agent

Data Exchange

1. Variables
2. JSON payloads
3. Object and array structures
4. Data transformation
5. Response formatting

Automation Control

1. Conditions
2. Branching
3. Error paths
4. Timeouts
5. Retry considerations

3. Microsoft Services and Connector Automation

Microsoft Service Integration

1. Microsoft 365 connectors
2. SharePoint
3. Teams
4. Outlook
5. Dataverse

Connector Architecture

1. Standard connectors
2. Premium connectors
3. Connection references
4. User versus maker connections
5. Authentication context

Agent-Driven Business Actions

1. Information retrieval
2. Record creation and updates
3. Notifications
4. Approvals
5. Multi-service automation

4. REST API Automation with Power Automate

HTTP-Based Integration

1. API endpoints
2. HTTP methods
3. Headers
4. Query parameters
5. Request bodies

API Authentication

1. API keys
2. Bearer tokens
3. OAuth concepts
4. Microsoft Entra ID
5. Credential handling

API Responses

1. Status codes
2. JSON parsing
3. Response extraction
4. Error responses
5. Response mapping

5. Custom Connectors and Reusable API Integration

Custom Connector Architecture

1. API definitions
2. Operations
3. Parameters
4. Authentication
5. OpenAPI specifications

Connector Usage

1. Power Automate
2. Copilot Studio tools
3. Reusable operations
4. Connection management
5. Solution-aware deployment

6. Advanced Agent and API Integration

Connecting Agents to External Services

1. Power Automate as integration layer
2. Direct REST API tools
3. Custom connectors
4. Tool descriptions
5. Tool selection

Integration Design Decisions

1. Connector versus HTTP
2. Custom connector versus direct API
3. Agent flow versus cloud flow
4. Reusability
5. Maintainability

Reliability and Security

1. Authentication boundaries
2. Least-privilege access
3. Error handling
4. Logging and monitoring
5. Data protection

7. Deployment and Operational Considerations

Solution Management

1. Solutions
2. Connection references
3. Environment variables
4. Environment movement
5. Dependency management

Production Readiness

1. Testing
2. Failure handling
3. Access controls
4. Monitoring
5. Governance

Disclaimer

This course outline is provided as an advanced instructional framework for delivery within the stated one-day duration. The trainer reserves the right to modify, reorder, consolidate, reduce, expand, or substitute topics where reasonably necessary to reflect participant capability, available training time, platform changes, technical availability, or instructional priorities, without prior notice.

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