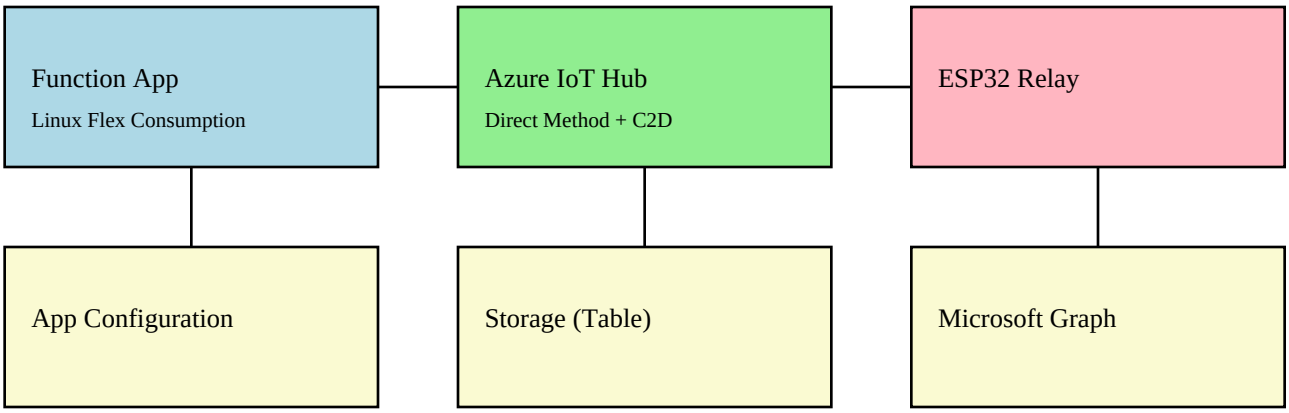
CAD Dispatch Solution – Azure Setup Guide (v4)

This guide details all Azure Portal steps and App Configuration keys for the CAD Dispatch solution.

Architecture Overview



Flow: Email → Graph Webhook → Function → IoT Hub → ESP32

App Configuration Keys (label: prod)

Key	Value (example)
Dispatch__SharedMailbox	Alert@bgvolfd.org
Dispatch__WebhookUrl	https://<func>/api/Notifications
Dispatch__LifecycleWebhookUrl	https://<func>/api/Notifications
Dispatch__UseRichNotifications	true
Dispatch__EncryptionCertBase64	<base64>
Dispatch__EncryptionCertId	bgvfd-cert
Dispatch:Routes:DISPATCH-1	Relay-1
Dispatch:Routes:DISPATCH-2	Relay-2
Dispatch:Routes:DISPATCH-3	Relay-3
IoTHub__HostName	<hub>.azure-devices.net
IoTHub__ConnectionString	<service SAS conn string>

Storage__AccountUri	https://<acct>.table.core.windows.net
Storage__ConnectionString	<conn string or devstorage>
Storage__TableName	DispatchAudit
Features__DispatchEnabled	true
Features__UseDirectMethod	true
Sentinels__AppConfigReload	1

1. Create Function App (Linux Flex Consumption)

- Portal: Function Apps → Create → Runtime .NET 8, OS Linux, Plan Flex Consumption.
- Enable System Assigned Managed Identity (Identity → On → Save).
- Enable Application Insights (optional but recommended).

2. Assign IAM permissions

- IoT Hub → Access Control (IAM) → Assign IoT Hub service roles to the Function App MSI.
- App Configuration → Access Control (IAM) → Assign Data Reader to the Function App MSI.
- Storage Account → Access Control (IAM) → Assign Storage Table Data Contributor (if using MSI).

3. Configure App Configuration

- Create App Configuration → Configuration Explorer → add keys (see table above).
- Optionally set label 'prod' and use labels to separate environments.
- Add sentinel key 'Sentinels__AppConfigReload' to trigger refresh when changed.

4. Setup IoT Hub and devices

- Create IoT Hub (Standard tier).
- Register devices Relay-1, Relay-2, Relay-3 (IoT Hub → Devices).
- Verify direct methods and C2D are enabled (device SDKs).

5. Configure Storage (Table)

- Create Storage Account → Tables → create 'DispatchAudit'.
- Use MSI (Storage__AccountUri) or connection string for the Function App.

6. Microsoft Graph subscriptions

- Webhook URL = Function App /api/Notifications.
- Use rich notifications (includeResourceData) with encryption cert; lifetime ~1 day.
- Basic notifications lifetime ~7 days; timer renews automatically.

7. Exchange Online RBAC for Applications

- Scope Graph Mail.* application permissions to Alert@bgvolfd.org using EAC/PowerShell.

- Create Management Scope, Service Principal pointer, and Role Assignment.

8. Deploy

- ZIP deploy: az functionapp deployment source config-zip --src cad_dispatch_v4.zip.
- Set App Settings for AppConfig connection or endpoint hints (AppConfig__*).

9. Test

- HTTP: GET /api/TestRelay?relay=1 (expect relay ON and audit entry).
- Email with subject DISPATCH-1 triggers Relay-1; message moved to 'Processed'.