5. Instrumentation
   └ **5.2 Alerting and metrics**
      └ **5.2.2 Alerts in GitHub Actions and Azure Pipelines**

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1. What types of alerts can be configured in GitHub Actions and Azure Pipelines?
2. How do you configure alerts for failed workflows in GitHub Actions?
3. How do you set up alert notifications in Azure Pipelines?
4. What are the main channels for receiving alerts from GitHub Actions?
5. How do you send custom alerts in a GitHub Actions workflow?
6. How can you integrate Azure Pipelines alerts with external systems (e.g., Teams, Slack)?
7. What are best practices for actionable alerting in CI/CD pipelines?
8. How do you suppress or customize notification frequency in GitHub Actions and Azure Pipelines?
9. What permissions are required to configure alert rules in GitHub Actions and Azure Pipelines?
10. What limitations exist with built-in alerting in GitHub Actions and Azure Pipelines?

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1. What types of alerts can be configured in GitHub Actions and Azure Pipelines?
Alerts include
- workflow/job failures,
- run duration warnings,
- environment deployment issues,
- and custom status checks.

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2. How do you configure alerts for failed workflows in GitHub Actions?
By default, users receive notifications for workflow failures. Customize alerts using workflow steps (e.g., send email, *Slack*) or third-party *Actions* on failure.

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3. How do you set up alert notifications in Azure Pipelines?
Use *Project Settings → Notifications*. Create subscriptions for pipeline run events (e.g., failures, approvals), set filters, and select recipients.

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4. What are the main channels for receiving alerts from GitHub Actions?
Notifications can be received via
- email,
- *GitHub* web,
- mobile app,
- or external services (e.g., *Slack*, *Teams*) via custom workflow steps.

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5. How do you send custom alerts in a GitHub Actions workflow?
Add steps to use *Actions* or scripts that trigger webhooks, emails, or chat notifications upon job failure or completion (e.g., actions/notify, curl to API).

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6. How can you integrate Azure Pipelines alerts with external systems (e.g., Teams, Slack)?
Use Service Hooks or add marketplace extensions (e.g., *Slack*, *Teams* connector) to send alerts on pipeline events to external channels.

7. What are best practices for actionable alerting in CI/CD pipelines?
- Alert only on actionable events (e.g., failures, blocking approvals),
- avoid excessive noise,
- include context (run links, error details),
- and direct alerts to responsible teams.

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8. How do you suppress or customize notification frequency in GitHub Actions and Azure Pipelines?
Configure personal and project notification settings to mute, group, or restrict alerts to certain event types or severities.

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9. What permissions are required to configure alert rules in GitHub Actions and Azure Pipelines?
- Repository write/admin access is needed for workflow modification in *GitHub Actions*.
- In *Azure Pipelines*, project admin or manage notifications permission is required.

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10. What limitations exist with built-in alerting in GitHub Actions and Azure Pipelines?
Built-in alerting is basic: lacks advanced filtering, grouping, or cross-project aggregation. Use external monitoring or notification platforms for advanced scenarios.