

THE ULTIMATE AZURE DEVOPS TROUBLESHOOTING PLAYBOOK



BY DEVOPS SHACK

DevOps Shack

The Ultimate Azure DevOps

Troubleshooting Playbook

1. Error: **Agent Job Timed Out**
 - Solution: Increase job timeout and optimize pipeline steps.
 - RCA: Task execution exceeded the default timeout due to complex builds or insufficient agent resources.
2. Error: **Error: Unable to resolve dependency**
 - Solution: Update dependencies or clear cache in pipeline tasks.
 - RCA: Version conflicts in dependencies or missing updates in the pipeline.
3. Error: **Repository is not authorized**
 - Solution: Reauthorize the repository or verify service connection permissions.
 - RCA: Token expired or incorrect access token permissions.
4. Error: **Unable to locate a suitable build agent**
 - Solution: Check agent pool availability or adjust parallelism limits.
 - RCA: No free agents due to concurrency limits or demand mismatches.
5. Error: **Docker build failed**
 - Solution: Verify Dockerfile syntax, context path, and agent Docker support.
 - RCA: Incorrect Dockerfile configuration or unsupported agent environment.



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6. Error: **Pipeline cannot access secrets**
 - Solution: Reconfigure the variable group or service connection for secrets.
 - RCA: Expired or misconfigured Azure Key Vault or service connections.
 7. Error: **403 Forbidden: Push is not permitted**
 - Solution: Update permissions or reconfigure branch protection rules.
 - RCA: Branch policies or insufficient user rights.
 8. Error: **Pull request validation failed**
 - Solution: Fix code style issues or address failing PR policies.
 - RCA: Linting errors or test failures in the pipeline.
 9. Error: **Git fetch failed with exit code 128**
 - Solution: Reconfigure credentials or verify the repository URL.
 - RCA: Authentication issues or incorrect URL formatting.
 10. Error: **Merge conflict detected**
 - Solution: Resolve conflicts locally and update the PR branch.
 - RCA: Simultaneous updates to the same files in different branches.
 11. Error: **Package upload failed**
 - Solution: Verify storage permissions and retry.
 - RCA: Insufficient permissions for Azure Artifacts storage.
 12. Error: **Artifact not found**
 - Solution: Verify artifact name and ensure build artifacts are published.
 - RCA: Missing or incorrect artifact publishing task.
 13. Error: **Failed to restore NuGet packages**

- Solution: Check **NuGet.Config** file paths and credentials.
- RCA: Invalid credentials or missing feed configurations.

14. Error: **Test Run Failed**

- Solution: Debug failing tests locally or analyze logs for root causes.
- RCA: Code changes caused functional or integration test failures.

15. Error: **No tests discovered**

- Solution: Validate test path and framework version in the pipeline.
- RCA: Misconfigured test discovery paths or framework compatibility.

16. Error: **Test adapter not found**

- Solution: Install the required test adapter on the agent.
- RCA: Missing adapter for the test framework (e.g., NUnit, MSTest).

17. Error: **ARM template deployment failed**

- Solution: Validate the template and ensure referenced resources exist.
- RCA: Syntax errors, missing dependencies, or invalid parameters.

18. Error: **Deployment slot swap failed**

- Solution: Verify slot compatibility and ensure no active deployments.
- RCA: Locked resources or mismatched configurations between slots.

19. Error: **Azure resource provisioning failed**

- Solution: Ensure quota availability and validate resource group configurations.
- RCA: Exceeding quota limits or invalid resource settings.

20. Error: **Kubernetes deployment failed**

- Solution: Debug Kubernetes manifests and validate cluster connectivity.
- RCA: Incorrect manifest files or cluster misconfiguration.



21. Error: **Unrecognized pipeline schema or invalid syntax**

- **Solution:**

- Validate the YAML syntax using the Azure Pipelines YAML schema reference.
- Use the pipeline editor in Azure DevOps for syntax validation.

- **RCA:**

- Occurs due to invalid indentation, missing keys, or unsupported schema versions.
- YAML syntax errors are common when copying configuration from external sources.

22. Error: **Unexpected value: 'steps'**

- **Solution:**

1. Check indentation and ensure **steps** is nested under **job** or **stage**.
2. Review the pipeline hierarchy for missing **jobs** or **stages** keys.

- **RCA:** Misaligned or misplaced keys disrupt the YAML structure.

23. Error: **Variables are not substituting in YAML**

- **Solution:**

- Ensure variables are defined correctly (**`$(variableName)`**).
- Use **variables** block at the correct scope (global, stage, or job-level).

- **RCA:**

- Variables defined in incorrect scopes or referenced using incorrect syntax.

24. Error: **Task 'XYZ' not found in agent**

- **Solution:**

1. Verify the task name and version in the YAML file.
2. Ensure the agent includes the task or manually install it for self-hosted agents.

- **RCA:** Missing task versions or incompatible agent configurations.

25. Error: `Condition '' failed`

- Solution:
 - Debug the conditional expression and ensure it evaluates correctly.
 - Use debugging tools to log variable values in the pipeline.
- RCA:
 - Conditional expressions fail due to undefined or mismatched variables.

26. Error: `Build pipeline not triggering automatically`

- Solution:
 - Check the trigger section in the YAML pipeline (`trigger: branches`).
 - Ensure branch names are correctly configured for continuous integration (CI).
- RCA:
 - Misconfigured trigger paths or branch patterns.

27. Error: `Release pipeline failed to deploy artifacts`

- Solution:
 1. Verify that artifacts are properly linked in the release pipeline.
 2. Check permissions for artifact download tasks.
- RCA: Missing or incorrect artifact links in release pipelines.

28. Error: `Service connection authentication failed`

- Solution:
 1. Revalidate the service connection credentials.
 2. Ensure the service principal has sufficient permissions in Azure or other cloud providers.
- RCA: Expired tokens, revoked credentials, or insufficient permissions.

29. Error: `Agent unable to download task definitions`

- Solution:
 1. Verify internet connectivity for the agent.
 2. Update the agent to the latest version.



- RCA: Network restrictions or outdated agents.

30. Error: `Cannot update deployment status in release pipeline`

- Solution:
 1. Grant the release pipeline user permissions to update deployments.
 2. Check for ongoing deployment conflicts.
- RCA: Lack of permissions for deployment updates or simultaneous deployments.

31. Error: `Personal Access Token (PAT) expired`

- Solution:
 1. Regenerate the PAT and update its reference in pipelines or tools.
 2. Use Azure Active Directory (AAD)-based authentication for long-term stability.
- RCA: Expired or revoked PAT, often due to default expiration policies.

32. Error: `Insufficient permissions for accessing Azure resources`

- Solution:
 1. Update the role assignments for the service principal or user.
 2. Use the `Reader` or `Contributor` role depending on the required access level.
- RCA: Misconfigured RBAC settings in Azure subscriptions.

33. Error: `Token audience is not recognized`

- Solution:
 1. Update the service principal to include the correct resource or scope.
 2. Regenerate the token with the appropriate audience claim.
- RCA: Misconfigured token scopes or incorrect audience claims during token generation.

34. Error: `User lacks permission to queue builds`



- Solution:
 1. Grant the user the `Queue build` permission in the pipeline's security settings.
 2. Assign `Contributor` or higher role to the user in the project.
- RCA: Insufficient user permissions in Azure DevOps security settings.

35. Error: `Docker image push failed`

- Solution:
 1. Verify the Docker registry credentials in the pipeline.
 2. Check storage limits and ensure the image tag matches the registry format.
- RCA: Invalid credentials, incorrect image tags, or exceeding storage quotas.

36. Error: `Kubernetes pod stuck in 'Pending' state`

- Solution:
 1. Check for resource limits or quotas in the Kubernetes cluster.
 2. Validate the YAML manifest for nodeSelector or affinity rules.
- RCA: Resource constraints or misconfigured scheduling rules.

37. Error: `Ingress not resolving traffic`

- Solution:
 1. Validate ingress annotations and ensure the DNS records point to the ingress IP.
 2. Check for misconfigured TLS certificates.
- RCA: Incorrect ingress configurations or missing DNS records.

38. Error: `ImagePullBackOff` in Kubernetes pods

- Solution:
 1. Verify the container registry credentials and image path.
 2. Check for rate limits or pull policies (e.g., `IfNotPresent`).



- RCA: Invalid registry credentials or image pull policy mismatches.

39. Error: `Terraform apply failed with HTTP 403`

- Solution:
 1. Verify the service principal's permissions on the Azure subscription.
 2. Ensure the resource group exists and is accessible.
- RCA: Misconfigured RBAC role assignments or resource group access restrictions.

40. Error: `State file not found in Terraform`

- Solution:
 1. Verify the backend storage account (e.g., Azure Blob) is accessible.
 2. Check for the correct state file configuration in `terraform.tfstate`.
- RCA: Backend storage was deleted, inaccessible, or misconfigured.

41. Error: `ARM template parameter value not supported`

- Solution:
 1. Validate parameter values using `az deployment validate`.
 2. Match parameter types with the template schema.
- RCA: Unsupported or incorrect parameter values were passed during deployment.

42. Error: `Ansible playbook execution failed`

- Solution:
 1. Debug the playbook with `-vvv` for detailed logs.
 2. Ensure all hosts in the inventory file are accessible.
- RCA: Host connectivity issues, missing SSH keys, or playbook syntax errors.

43. Error: `Work item type not found`

- Solution:
 1. Verify the work item type exists in the current process template.

2. Add the work item type in **Project Settings > Process**.

- RCA: Work item type mismatch or missing process configuration.

44. Error: **Area path or iteration path invalid**

- Solution:

1. Update the area's configuration in **Project Settings > Area Paths**.

2. Verify iteration paths are correctly defined for the project.

- RCA: Area paths were not updated after process changes.

45. Error: **Azure Monitor metrics not visible in pipelines**

- Solution:

1. Verify the Azure Monitor integration in the pipeline settings.

2. Check for permissions to read metrics in the Azure subscription.

- RCA: Insufficient access or misconfigured Azure Monitor integration.

46. Error: **Failed to create log analytics workspace**

- Solution:

1. Ensure the subscription has sufficient quota for log analytics workspaces.

2. Check for resource naming conflicts or policy restrictions.

- RCA: Exceeding resource quotas or conflicting naming conventions.

47. Error: **Unable to download NuGet package**

- Solution:

1. Verify feed credentials and permissions for the user or service principal.

2. Update the **NuGet.Config** file with the correct feed URL.

- RCA: Incorrect credentials or outdated feed references.

48. Error: **Universal package download failed**

- Solution:

1. Verify the universal package exists in the Azure Artifacts feed.

2. Check permissions for accessing the feed in **Artifacts Security**

- RCA: Package was deleted, or permissions were misconfigured.

49. Error: **Service connection expired or not authorized**

- Solution:
 1. Revalidate the service connection in **Project Settings**
> Service Connections.
 2. Update expired credentials or tokens for the connection.
- RCA: Tokens expired or were revoked, or the associated principal lost permissions.

50. Error: **Azure Resource Manager service connection failed**

- Solution:
 1. Validate the service principal's role assignments in the subscription.
 2. Grant **Contributor** or appropriate role access.
- RCA: Service principal lacks necessary permissions on the target resources.

51. Error: **Self-hosted agent went offline**

- Solution:
 1. Restart the agent and check the logs in the **Agent_diag** folder.
 2. Verify the network connectivity between the agent and Azure DevOps.
- RCA: Network interruptions or misconfigured agent configurations.

52. Error: **Agent could not resolve hostname**

- Solution:
 1. Verify the DNS settings on the self-hosted agent machine.
 2. Use IP addresses as a temporary workaround to check connectivity.
- RCA: DNS resolution issues or restricted access to the target.

53. Error: **Out of disk space on build agent**

- Solution:



1. Clean up temporary files and workspace folders on the agent.
 2. Increase disk space or switch to a different agent.
- RCA: Disk space was exhausted due to large artifacts or build outputs.

54. Error: **Email notifications not received**

- Solution:
 1. Check the email subscription settings in **Project Settings > Notifications**.
 2. Verify the email address in Azure DevOps user profile settings.
- RCA: Notification rules were disabled, or email delivery failed.

55. Error: **Service hooks delivery failed**

- Solution:
 1. Check the endpoint configuration and retry the failed hooks.
 2. Validate the webhook endpoint's accessibility and response.
- RCA: Endpoint was unavailable or misconfigured.

56. Error: **Resource unavailable: Quota exceeded**

- Solution:
 1. Increase quotas in the Azure subscription for the affected resources.
 2. Use existing resources where possible.
- RCA: Resource quota limits were reached in the Azure region.

57. Error: **Cannot connect to Azure DevOps organization**

- Solution:
 1. Verify Azure DevOps organization status at Azure DevOps Service Status.
 2. Check for network connectivity issues.
- RCA: Service outages or regional connectivity issues.

58. Error: **User session expired**

- Solution:
 1. Re-login to Azure DevOps and clear browser cache.



2. Increase session duration if using a personal access token.

- RCA: Authentication tokens expired or session timeout policies were applied.

59. Error: `Pod configuration invalid`

- Solution:
 - Validate the Kubernetes manifest file using `kubectl apply --dry-run`.
 - Check for missing fields, improper formatting, or invalid values.
- RCA:
 - Syntax or structural errors in the YAML manifest.
 - Deprecated fields used in the manifest.

60. Error: `CrashLoopBackOff` for deployed containers

- Solution:
 - Use `kubectl logs <pod-name>` to inspect logs for error details.
 - Check readiness probes, environment variables, and application configurations.
- RCA:
 - Application failed to start due to incorrect configurations or missing dependencies.

61. Error: `Service not exposing application`

- Solution:
 - Validate service type (ClusterIP, NodePort, LoadBalancer) in the manifest.
 - Verify DNS resolution and ensure Ingress rules are applied correctly.
- RCA:
 - Incorrect service configuration or missing Ingress annotations.

62. Error: `ImagePullBackOff`

- Solution:
 - Verify container registry credentials in the Kubernetes secret.



- Ensure the image name and tag are correct.
- RCA:
 - Authentication failure or missing image in the registry.

63. Error: **Unauthorized error accessing AKS cluster**

- Solution:
 - Ensure the Azure DevOps service connection is authorized to access the AKS cluster.
 - Update Kubernetes RBAC permissions to allow required operations.
- RCA:
 - Insufficient permissions or expired credentials in the service connection.

64. Error: **GitHub webhook delivery failed**

- Solution:
 - Verify the webhook URL and secret in the GitHub repository settings.
 - Check for firewall or network restrictions blocking webhook requests.
- RCA:
 - Invalid webhook URL or network issues.

65. Error: **Unable to fetch GitHub repository**

- Solution:
 - Ensure the GitHub service connection is configured with proper access tokens.
 - Reauthorize the connection in Azure DevOps.
- RCA:
 - Expired personal access token or revoked OAuth app permissions.

66. Error: **GitHub Actions conflicts with Azure Pipelines**

- Solution:
 - Decide on a single CI/CD tool for the repository (Azure Pipelines or GitHub Actions).

- Ensure no conflicting `.yaml` files are triggering multiple builds simultaneously.
- RCA:
 - Both tools are triggered for the same repository, causing resource conflicts.

67. Error: `Terraform plan failed`

- Solution:
 - Debug the Terraform task output to identify syntax or resource configuration issues.
 - Use the `terraform validate` command locally to test the plan.
- RCA:
 - Incorrect or missing variables, syntax errors, or invalid resource definitions.

68. Error: `Publish Build Artifacts task failed`

- Solution:
 - Verify the artifact path in the pipeline and ensure it exists after the build.
 - Use the `Copy Files` task to ensure artifacts are moved to the correct directory.
- RCA:
 - Missing artifact files due to incorrect paths or failed build steps.

69. Error: `Azure CLI task failed`

- Solution:
 - Verify the Azure CLI version compatibility for the task.
 - Check the Azure subscription context in the task configuration.
- RCA:
 - Outdated Azure CLI version or invalid subscription ID.

70. Error: `KeyVault task failed to fetch secrets`

- Solution:



- Ensure the Azure Key Vault is accessible from the service principal.
 - Add proper access policies to allow secret retrieval.
- RCA:
 - Misconfigured Key Vault access policies or expired service principal credentials.

71.Error: Failed to deliver service hook event

- Solution:
 - Verify the endpoint configuration for the service hook.
 - Ensure the target application (e.g., Slack, Jenkins) is online and accessible.
- RCA:
 - Network issues or invalid endpoint URLs.

72.Error: Service hook authentication failed

- Solution:
 - Revalidate the authentication method used (e.g., OAuth, PAT).
 - Update expired credentials or tokens.
- RCA:
 - Expired or invalid authentication credentials for the target service.

73.Error: Power BI data pipeline not refreshing

- Solution:
 - Ensure the Azure DevOps Analytics connector is authorized in Power BI.
 - Check the dataset configuration for schedule refresh settings.
- RCA:
 - Authorization issues or misconfigured dataset refresh schedules.

74.Error: Data not syncing with Azure DevOps Analytics

- Solution:
 - Verify the analytics service is enabled in the Azure DevOps organization.
 - Check if there are delays in analytics data processing.



- RCA:
 - Service latency or analytics processing delays.

75. Error: **Azure Function deployment failed**

- Solution:
 - Debug the deployment logs for errors in configuration or runtime settings.
 - Ensure the App Service plan supports the Azure Function's requirements.
- RCA:
 - Misconfigured deployment settings or incompatible App Service plan.

76. Error: **App Service slot swap failed**

- Solution:
 - Verify that both deployment slots have compatible settings.
 - Resolve any application conflicts, such as locked resources.
- RCA:
 - Deployment slots configured with conflicting settings.

24. Advanced Deployment and Infrastructure Errors

77. Error: **App Service deployment failed due to locked resources**

- Solution:
 - Check the resource group for locked resources in the Azure portal.
 - Remove the locks or coordinate with administrators to release them.
- RCA:
 - Resource locks (read-only or delete locks) prevent changes to the App Service.

78. Error: **Azure Application Gateway configuration failed**

- Solution:
 - Validate the backend pool settings and health probe configuration.

- Ensure the target endpoints are reachable from the Application Gateway.
- RCA:
 - Incorrect backend settings, misconfigured probes, or network issues.

79. Error: **VM Scale Set deployment failed**

- Solution:
 - Verify the VM image and SKU compatibility with the scale set configuration.
 - Check for resource availability in the selected Azure region.
- RCA:
 - Unsupported VM image or insufficient regional resources.

80. Error: **Traffic Manager endpoint not resolving**

- Solution:
 - Ensure the endpoint is online and reachable.
 - Verify DNS configurations and Traffic Manager profiles.
- RCA:
 - Offline endpoints or incorrect DNS configurations.

81. Error: **Pipeline condition evaluation failed**

- Solution:
 - Validate the condition syntax (e.g., **and**, **or**, **eq**) in the YAML file.
 - Use pipeline variables and debugging to trace condition execution.
- RCA:
 - Misconfigured or unsupported conditional expressions.

82. Error: **Stages skipped due to condition failure**

- Solution:
 - Check the dependencies between stages.
 - Verify that the correct variables and outputs are used in the conditions.

- RCA:
 - Stage conditions not matching due to variable scope or incorrect expressions.

83. Error: **JIRA integration failed to sync work items**

- Solution:
 - Reconfigure the JIRA service connection with updated credentials.
 - Verify webhook configuration in JIRA for Azure DevOps sync.
- RCA:
 - Expired tokens, revoked permissions, or incorrect webhook settings.

84. Error: **Slack notifications not triggered**

- Solution:
 - Verify the webhook URL in the service hook configuration.
 - Check for network restrictions between Azure DevOps and Slack.
- RCA:
 - Invalid webhook configuration or blocked requests.

85. Error: **SonarQube analysis failed in pipeline**

- Solution:
 - Verify the SonarQube service connection credentials.
 - Ensure the **Prepare Analysis** task is configured correctly in the pipeline.
- RCA:
 - Incorrect token or server URL in the service connection.

86. Error: **PersistentVolumeClaim pending in Kubernetes**

- Solution:
 - Check if the storage class used is available and properly configured.
 - Validate the size and access modes in the PVC definition.
- RCA:



- Misconfigured storage class or insufficient storage availability.

87. Error: `Helm chart deployment failed`

- Solution:
 - Debug the `helm install` or `helm upgrade` logs for detailed error messages.
 - Ensure the correct values file is used during deployment.
- RCA:
 - Missing or incorrect values in the Helm chart configuration.

88. Error: `Kubernetes node not ready`

- Solution:
 - Inspect the node logs using `kubectl describe node <node-name>`.
 - Check for resource limits or issues with node components (e.g., kubelet).
- RCA:
 - Resource exhaustion or node component failures.

89. Error: `Ingress TLS certificate error`

- Solution:
 - Verify the certificate and private key used for the Ingress resource.
 - Check the annotation for the correct certificate provider (e.g., Cert-Manager, Let's Encrypt).
- RCA:
 - Invalid or expired TLS certificates.

90. Error: `Failed to link work item to build`

- Solution:
 - Check if the build is associated with the correct branch and repository.
 - Ensure permissions allow linking work items to builds.
- RCA:



- Missing build association or insufficient permissions.

91. Error: **Work item query execution failed**

- Solution:
 - Validate the query syntax in Azure Boards.
 - Check for invalid area paths or iteration paths in the query.
- RCA:
 - Invalid paths or incorrect field references in the query.

92. Error: **Pipeline execution data missing in reports**

- Solution:
 - Enable pipeline analytics in Azure DevOps organization settings.
 - Wait for data processing to complete if the pipeline was recently executed.
- RCA:
 - Analytics data delayed due to processing lags or misconfigured settings.

93. Error: **Reports not generating in Power BI**

- Solution:
 - Ensure the Azure DevOps Analytics connector is set up correctly in Power BI.
 - Refresh the dataset manually or review automatic refresh settings.
- RCA:
 - Connector misconfiguration or invalid dataset queries.

94. Error: **Environment approval not triggered**

- Solution:
 - Check the environment settings and ensure approval is enabled.
 - Add required approvers in the environment configuration.
- RCA:
 - Missing approvers or disabled approval settings.

95.Error: **Artifact clean-up task failed**

- Solution:
 - Verify the retention policy for artifacts in pipeline settings.
 - Ensure the agent has permission to delete artifacts.
- RCA:
 - Retention policy misconfigurations or insufficient permissions.

96.Error: **Self-hosted agent pool limit reached**

- Solution:
 - Increase the number of self-hosted agents in the pool.
 - Optimize pipeline concurrency to reduce contention.
- RCA:
 - Pool limits exceeded due to high concurrency.

97.Error: **Failed to update project settings**

- Solution:
 - Verify the user has **Project Administrator** permissions.
 - Recheck the validity of input fields in the settings update.
- RCA:
 - Insufficient permissions or invalid configurations.

98.Error: **Azure DevOps extension installation failed**

- Solution:
 - Check for compatibility of the extension with the Azure DevOps version.
 - Reinstall the extension after resolving connectivity issues.
- RCA:
 - Incompatible extension version or network interruptions.

99.Error: **Pipeline fails to trigger on branch updates**

- Solution:
 - Validate trigger paths and branch filters in the YAML pipeline.
 - Check repository permissions for the pipeline trigger.

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- **RCA:**
 - **Misconfigured branch filters or insufficient repository permissions.**

 - 100. Error: Failed to clone repository in pipeline - Solution:**
 - **Ensure the service connection or PAT used for repository access is valid.**
 - **Verify the repository URL and credentials. - RCA:**
 - **Authentication issues or incorrect repository URLs.**