

# Deep Research Tool Deployment Requirements and Permissions

## ✅ Azure Prerequisites

### 1. Azure Subscription

- Must have access to Azure AI Foundry.
- Must be able to deploy resources in **West US** or **Norway East** (only supported regions for Deep Research).

### 2. Required Azure Resources

- **Azure AI Foundry Project:** Create a project of type **Azure AI Foundry**.
- **Model Deployments:**
  - `o3-deep-research` model (version 2025-06-26).
  - `gpt-4o` model for scope clarification.
  - Both models must be deployed in the **same region** and **same subscription**.
- **Grounding with Bing Search:**
  - Create a Bing Search resource and connect it to the AI Foundry project.
  - This is used to gather authoritative web data for research.
  - *If deploying Custom Bing Search, there is an additional step after deployment - creating a configuration profile that the Azure Foundry Resource/Project/Agent will connect to.*

### 3. Environment Variables

- **PROJECT\_ENDPOINT** : `https://NAME-OF-FOUNDRY-RESOURCE.services.ai.azure.com/api/projects/NAME-OF-PROJECT-AGENT-IS-IN`
- **DEEP\_RESEARCH\_MODEL\_DEPLOYMENT\_NAME** : `o3-deep-research`
- **MODEL\_DEPLOYMENT\_NAME** : `gpt-4o`
- **BING\_CONNECTION\_NAME**: name of the Connected Resource inside Foundry Management Center -> Connected Resources (see below)

## Screenshots

Note that the Connected Resource name is not the same as the Bing Resource, it is the name given the "Connected Resource".

Also note that the SDK requires you pass the Connection ID, which is a constructed string that follows this pattern: `/subscriptions/<subscription_id>/resourceGroups/<resource_group_name>/providers/Microsoft.CognitiveServices/accounts/<ai_service_name>/projects/<project_name>/connections/<connection_name>`

```
conn_id = project_client.connections.get(name=os.environ["BING_CONNECTED_RESOURCE_NAME"]).id
span.set_attribute("bing.connection_id", conn_id)

# Initialize a Deep Research tool with Bing Connection ID and Deep Research model deployment name
deep_research_tool = DeepResearchTool(
    bing_grounding_connection_id=conn_id,
    deep_research_model=os.environ["DEEP_RESEARCH_MODEL_DEPLOYMENT_NAME"],
)
```

- `os.environ["BING_CONNECTED_RESOURCE_NAME"]` retrieves the **name** of the Bing connection from the environment variable.
- `project_client.connections.get(name=...)` uses that name to **look up the full connection object**.
- `.id` extracts the **full connection ID string** from that object — which is what the `DeepResearchTool` actually needs.

So yes, this line is resolving the connection name into the full connection ID.

### ✓ Why this is useful

This approach lets developers:

- Keep the environment variable simple (just the name).
- Dynamically resolve the full ID at runtime, which avoids hardcoding long strings like:

