

Develop for Azure Storage

└ 2.2 Develop solutions that use Azure Cosmos DB

└ 2.2.2 Perform operations by using the appropriate SDK

1. What SDKs are supported for Azure Blob Storage operations?
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5. How do you delete a blob using the Azure SDK?
6. How do you perform conditional operations (e.g., upload if not exists)?
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9. How do you set retries and timeouts in SDK operations?
10. What are best practices for SDK usage in production?

1. What SDKs are supported for Azure Blob Storage operations?

- Official Azure SDKs:
 - .NET (Azure.Storage.Blobs)
 - Python (azure-storage-blob)
 - Java (azure-storage-blob)
 - JavaScript/TypeScript (e.g., @azure/storage-blob)

2. How do you create and upload a blob using the Azure SDK (C#, Python)?

- C# Example:

```
BlobClient blobClient = containerClient.GetBlobClient("myblob.txt");
await blobClient.UploadAsync("localfile.txt", overwrite: true);
```

3. How do you download a blob using the Azure SDK?

```
BlobDownloadInfo download = await blobClient.DownloadAsync();
using (FileStream fs = File.OpenWrite("downloaded.txt"))
{
    await download.Content.CopyToAsync(fs);
}
```

4. How do you list blobs inside a container?

```
await foreach (BlobItem blobItem in containerClient.GetBlobsAsync())
{
    Console.WriteLine(blobItem.Name);
}
```

5. How do you delete a blob using the Azure SDK?

```
await blobClient.DeleteIfExistsAsync();
```

6. How do you perform conditional operations (e.g., upload if not exists)?

- Set the conditions parameter with an If-None-Match: * condition.
- C# Example:

```
var conditions = new BlobRequestConditions { IfNoneMatch = new ETag("*") };
await blobClient.UploadAsync("localfile.txt", conditions: conditions);
```

7. How do you use a stream to upload/download blobs?

- Upload Stream (C#):

```
using var stream = File.OpenRead("localfile.txt");  
await blobClient.UploadAsync(stream, overwrite: true);
```
 - Download Stream (C#):

```
BlobDownloadInfo download = await blobClient.DownloadAsync();  
using var file = File.OpenWrite("output.txt");  
await download.Content.CopyToAsync(file);
```
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8. How do you handle large blobs efficiently (e.g., upload in blocks)?

- Use UploadAsync for files up to 256 MB (default).
 - For larger files, use UploadAsync with automatic chunking or manually use BlockBlobClient.StageBlockAsync and CommitBlockListAsync.
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9. How do you set retries and timeouts in SDK operations?

- C# Example:

```
BlobClientOptions options = new BlobClientOptions  
{  
    Retry =  
    {  
        MaxRetries = 5,  
        Delay = TimeSpan.FromSeconds(2),  
        MaxDelay = TimeSpan.FromSeconds(10),  
        Mode = RetryMode.Exponential  
    }  
};  
var blobServiceClient = new BlobServiceClient(connectionString, options);
```
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10. What are best practices for SDK usage in production?

- Always set appropriate retry policies and timeouts.
- Prefer streams for large files.
- Handle exceptions explicitly (e.g., RequestFailedException in C#).
- Reuse BlobServiceClient, BlobContainerClient, and BlobClient instances (they are thread-safe).
- Secure secrets and connection strings (use Azure Managed Identity if possible).