Fabric - Storage account (ADLS gen2)

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Assess shortcut from Azure (ADLSgen2) to Fabric

- Compare access control mechanisms between Azure and Fabric for ADLS shortcuts
- Evaluate security implications of ADLS Gen2 shortcuts in Fabric
- Latency consideration

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SYSM-389 - Compare access control mechanisms between Azure and Fabric for ADLS shortcuts

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Key message

> *Access to ADLS Gen2 data through Fabric shortcuts is governed by **two distinct control planes**: Azure controls access to the storage target, while Fabric controls access to the shortcuted data experience. The design question is not only "who can connect", but also "which layer authorizes what, with which identity, and at which granularity."*

Description

This section compares how access to ADLS Gen2 data is managed in **Azure** versus **Fabric**, focused on three dimensions:

Dimension	Azure	Fabric
Authentication	Microsoft Entra identity, service principal, managed identity, SAS, Shared Key depending on access mode	Shortcut credential such as Workspace Identity, Service Principal, Organizational account, SAS, or Account Key

Authorization	Azure RBAC plus POSIX-style ACLs on folders/files	Workspace roles, item permissions, and OneLake security roles on folders /tables
Access scope	Storage account, container, directory, file	Workspace, item, shortcut path, folder, table

- Azure Data Lake Storage uses **RBAC for coarse-grained access** and **ACLs for fine-grained access**.
- Fabric uses workspace and item permissions, and OneLake security adds fine-grained access at folder or table level for supported items.

Azure vs Fabric comparison

Topic	Azure ADLS Gen2	Fabric
Primary purpose	Protect the storage resource itself	Protect access to data through Fabric items and experiences
Identity model	Entra users, groups, service principals, managed identities	Fabric users plus shortcut credential / workspace identity
Main authorization model	Azure RBAC + ACL	Workspace roles + item permissions + OneLake security
Granularity	RBAC = broad, ACL = file/folder level	Workspace/item = broad, OneLake security = folder/table level
Default security posture	Depends on RBAC/ACL assignments	OneLake security follows deny-by-default once enabled on the item
Non-Entra access	SAS and Shared Key supported	SAS and Account Key can be used for shortcuts, but reduce identity-based governance
Operational owner	Azure / platform / infra team	Fabric / analytics / data platform team

- Azure RBAC can grant broad access to a storage account or container, while ACLs secure individual directories and files.
- In Fabric, OneLake security roles can grant access only to specific folders or tables, while Admins, Members, and Contributors generally retain broad access within the item

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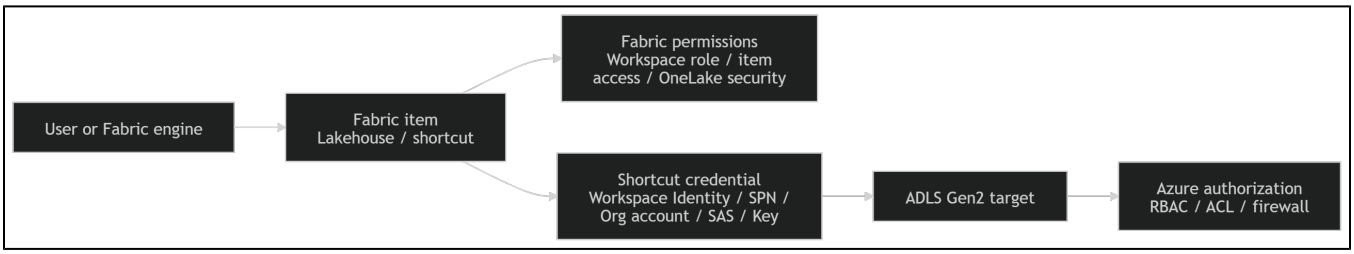
SYSM-388 - Evaluate security implications of ADLS Gen2 shortcuts in Fabric

> ⚠ **SYSM-389 - Jira project doesn't exist or you don't have permission to view it.**

Shortcut-specific access model

Question	Practical answer
Who authenticates to ADLS?	The identity configured on the shortcut
Who authorizes storage access?	Azure ADLS
Who authorizes visibility in Fabric?	Fabric workspace/item permissions and, when enabled, OneLake security
What happens if both layers apply?	The effective access is constrained by both layers; for shortcuts, Fabric documents a most-restrictive logic between shortcut path and target path
Is behavior identical across engines?	No; some scenarios use delegated identity differently, including owner-based access patterns in specific engines

Access flow



Layer	What it controls	Examples
Fabric layer	Who can see and use the shortcut inside Fabric	Workspace role, item access, OneLake security
Shortcut layer	Which identity is used to reach ADLS	Workspace Identity, Service Principal, Organizational account, SAS, Account Key
Azure layer	Whether the target storage path can actually be read	RBAC, ACL, firewall / trusted access

Shortcut authentification models

> *Delegated shortcuts access data by using some intermediate credential, such as another user or an account key.*
>
> *These shortcuts allow for permission management to be separated or 'delegated' to another team or downstream user to manage.*
>
> *Delegated shortcuts always break the flow of security from one system to another.*

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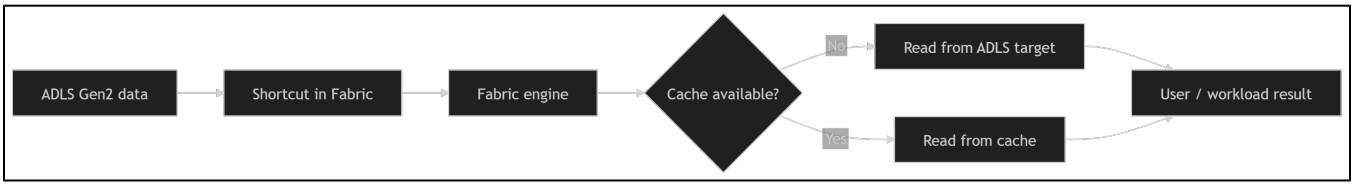
Latency consideration

Latency view

Dimension	What it means	Shortcut impact
Exposure latency	Time to make data available in Fabric	Low, because no ingestion copy is required. (Microsoft Learn)
First-read latency	Time for the first query/read to access ADLS data	Can be higher than fully ingested local data because Fabric still reads the external target. (Microsoft Learn)
Repeated-read latency	Time for subsequent reads of the same data	Often improved when cache is used. (Microsoft Learn)
Refresh latency	Delay before changes in ADLS are reflected	Depends on engine and cache refresh behavior; Spark intelligent cache automatically detects underlying file changes. (Microsoft Learn)

Cache Solution for Shortcuts

Mecanism



Settings

Shortcut caching currently supports Google Cloud Storage (GCS), S3, S3 compatible, and on-premises data gateway shortcuts.

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