Practical Task 2: Lifecycle Management for Blob Storage

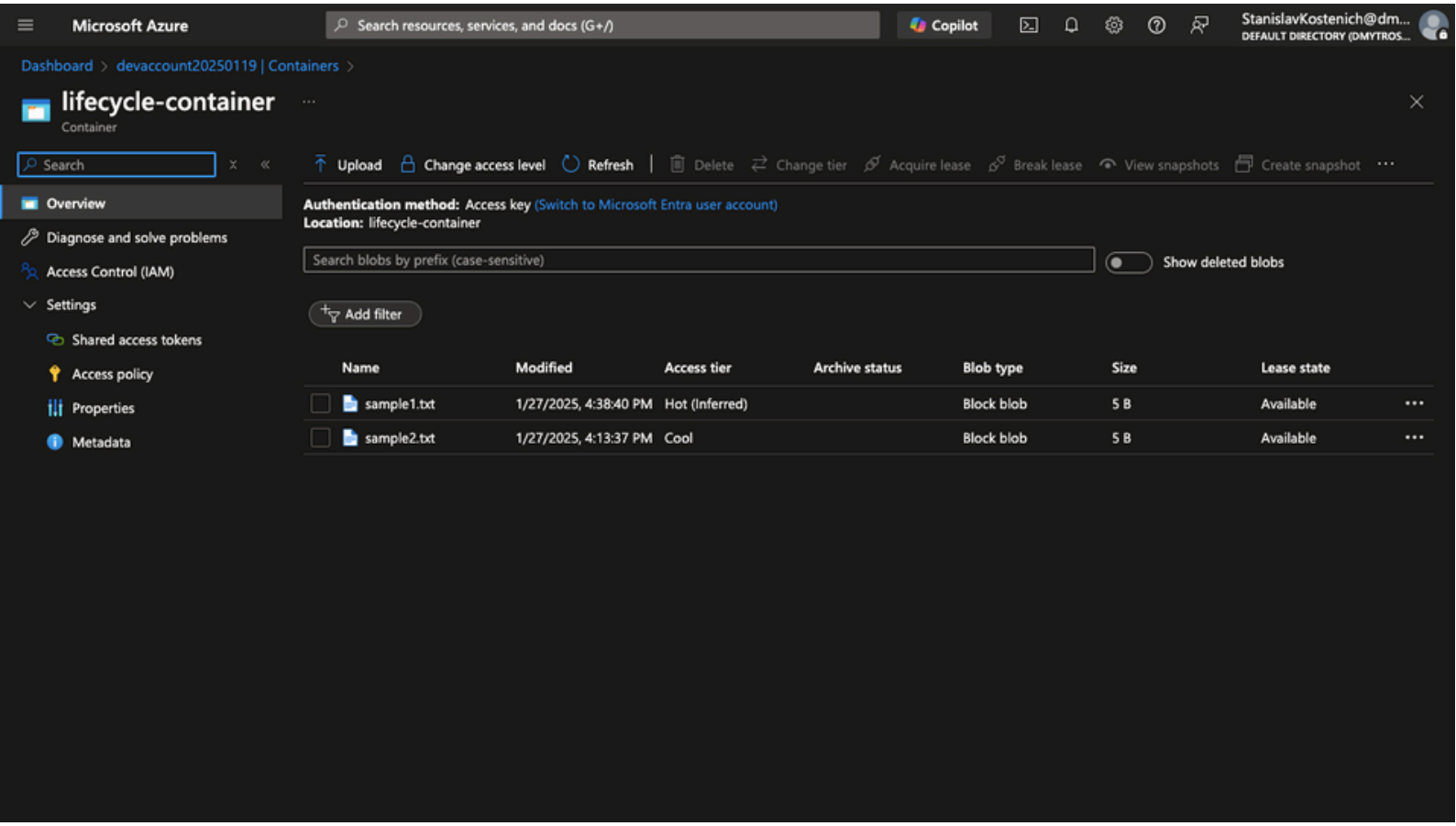
Implement lifecycle management policies to optimize storage costs.

Requirements:

1. Create a storage account and a Blob container named "lifecycle-container."
2. Upload multiple files of varying sizes to the container.
3. Create a lifecycle management policy to move blobs to the Cool tier after 30 days and delete blobs older than 90 days.
4. Simulate policy execution by manually testing with different file creation timestamps.
5. Verify that blobs are moved or deleted according to the policy.

Practical Task 3: Implementing an Azure Queue for Message Storage

Create and manage an Azure Queue to store and process messages.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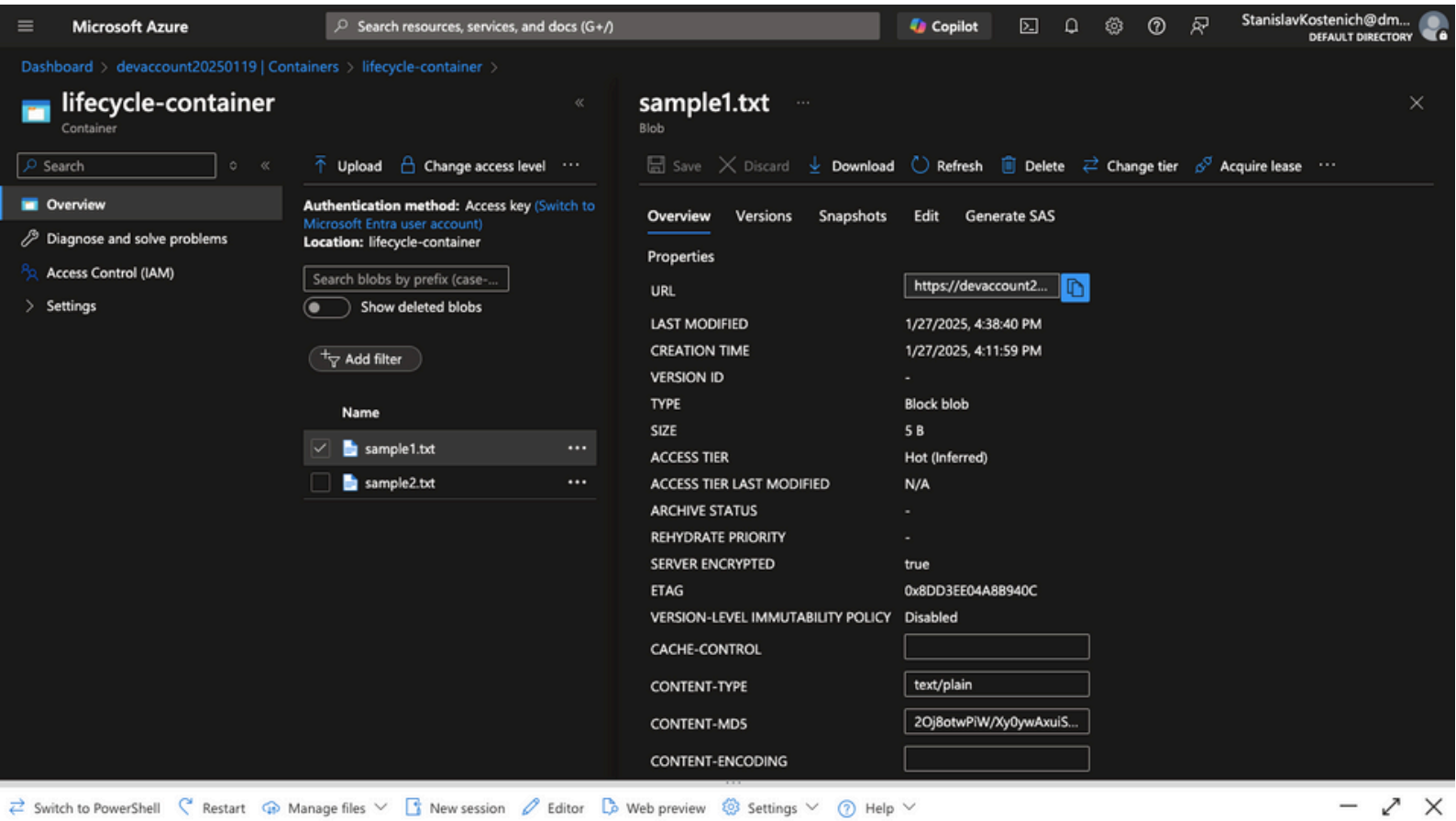
StanislavKostenich@dm...
DEFAULT DIRECTORY (DMYTROS...
Dashboard > devaccount20250119 | Containers >
lifecycle-container
Container
Search
Overview
Diagnose and solve problems
Access Control (IAM)
Settings
Shared access tokens
Access policy
Properties
Metadata
Upload
Change access level
Refresh
Delete
Change tier
Acquire lease
Break lease
View snapshots
Create snapshot
Authentication method: Access key (Switch to Microsoft Entra user account)
Location: lifecycle-container
Search blobs by prefix (case-sensitive)
Show deleted blobs
Add filter
Name
Modified
Access tier
Archive status
Blob type
Size
Lease state
sample1.txt
1/27/2025, 4:38:40 PM
Hot (Inferred)
Block blob
5 B
Available
sample2.txt
1/27/2025, 4:13:37 PM
Cool
Block blob
5 B
Available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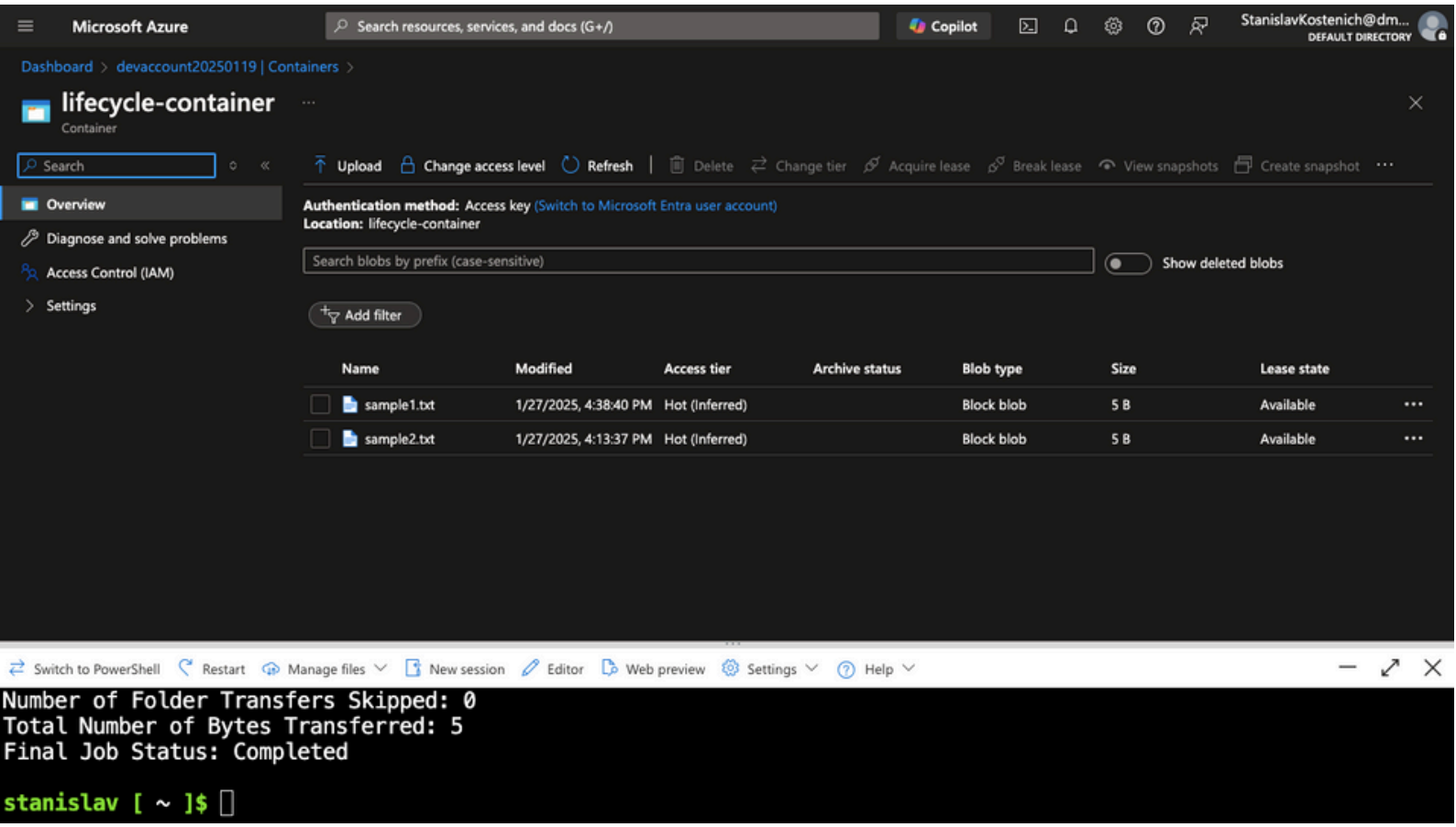
Change access level
Authentication method: Access key (Switch to Microsoft Entra user account)
Location: lifecycle-container
Search blobs by prefix (case-...
Show deleted blobs
Add filter
Name
sample1.txt
sample2.txt
sample1.txt
Blob
Save
Discard
Download
Refresh
Delete
Change tier
Acquire lease
Overview
Versions
Snapshots
Edit
Generate SAS
Properties
URL
https://devaccount2...
LAST MODIFIED
1/27/2025, 4:38:40 PM
CREATION TIME
1/27/2025, 4:11:59 PM
VERSION ID
-
TYPE
Block blob
SIZE
5 B
ACCESS TIER
Hot (Inferred)
ACCESS TIER LAST MODIFIED
N/A
ARCHIVE STATUS
-
REHYDRATE PRIORITY
-
SERVER ENCRYPTED
true
ETAG
0x8DD3EE04A8B940C
VERSION-LEVEL IMMUTABILITY POLICY
Disabled
CACHE-CONTROL
CONTENT-TYPE
text/plain
CONTENT-MD5
2Oj8otwPlW/Xy0ywAxuiS...
CONTENT-ENCODING
Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help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Archive status
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Hot (Inferred)
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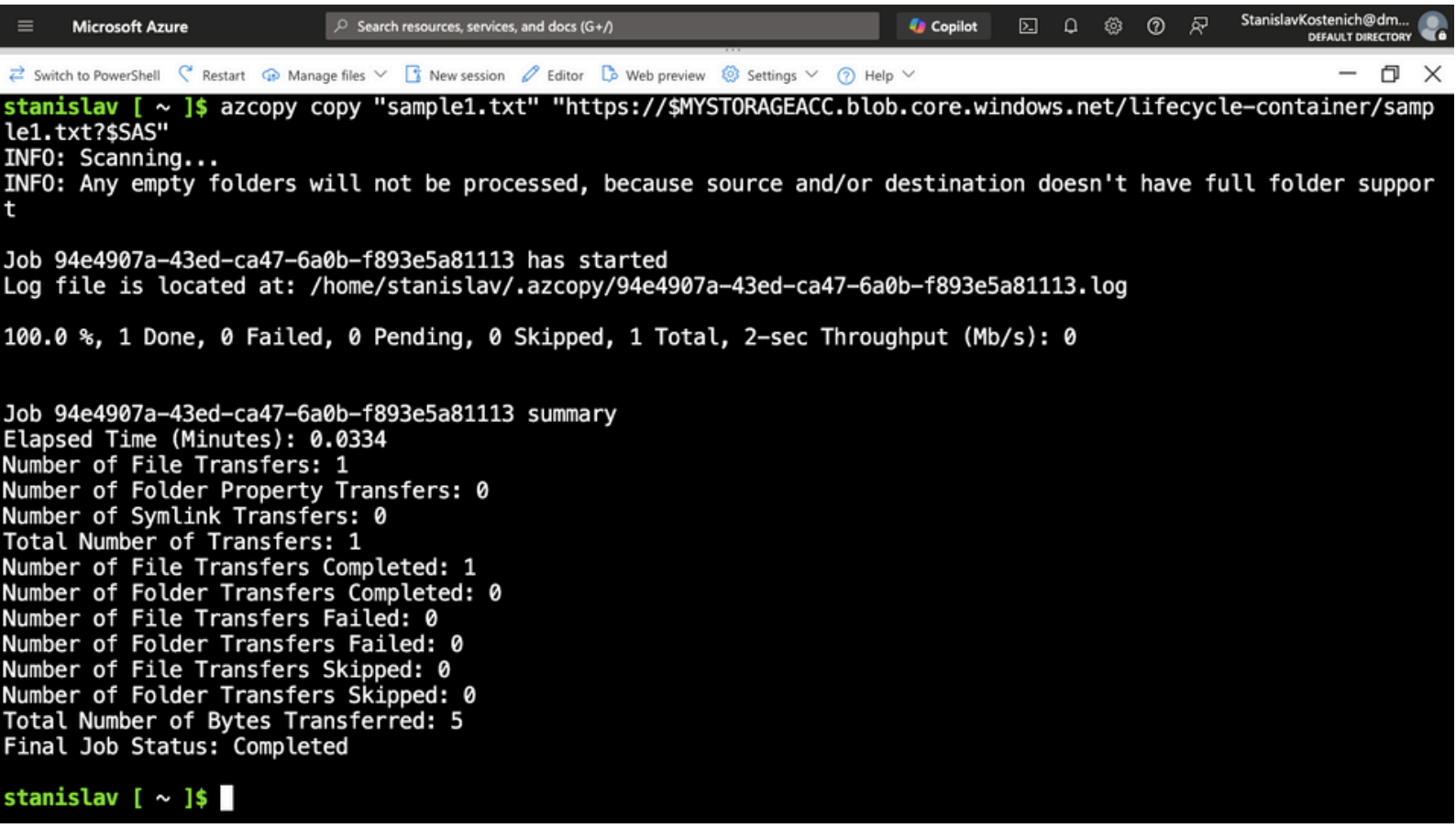
Hot (Inferred)
Block blob
5 B
Available

Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
Number of Folder Transfers Skipped: 0
Total Number of Bytes Transferred: 5
Final Job Status: Completed
stanislav [~]$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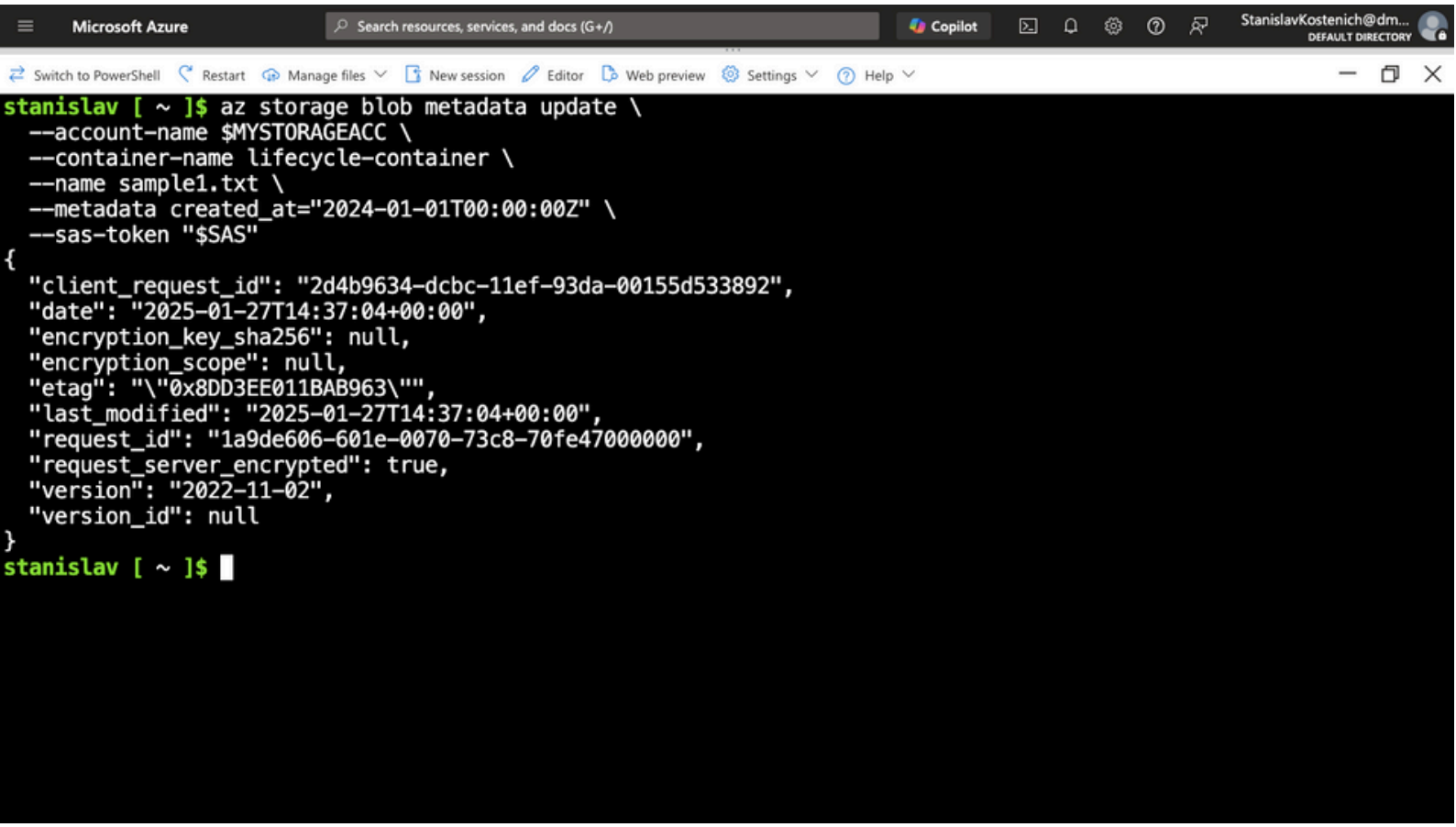
DEFAULT DIRECTORY
Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
stanislav [~]$ azcopy copy "sample1.txt" "https://$MYSTORAGEACC.blob.core.windows.net/lifecycle-container/sample1.txt?$SAS"
INFO: Scanning...
INFO: Any empty folders will not be processed, because source and/or destination doesn't have full folder support
Job 94e4907a-43ed-ca47-6a0b-f893e5a81113 has started
Log file is located at: /home/stanislav/.azcopy/94e4907a-43ed-ca47-6a0b-f893e5a81113.log
100.0 %, 1 Done, 0 Failed, 0 Pending, 0 Skipped, 1 Total, 2-sec Throughput (Mb/s): 0
Job 94e4907a-43ed-ca47-6a0b-f893e5a81113 summary
Elapsed Time (Minutes): 0.0334
Number of File Transfers: 1
Number of Folder Property Transfers: 0
Number of Symlink Transfers: 0
Total Number of Transfers: 1
Number of File Transfers Completed: 1
Number of Folder Transfers Completed: 0
Number of File Transfers Failed: 0
Number of Folder Transfers Failed: 0
Number of File Transfers Skipped: 0
Number of Folder Transfers Skipped: 0
Total Number of Bytes Transferred: 5
Final Job Status: Completed
stanislav [~]$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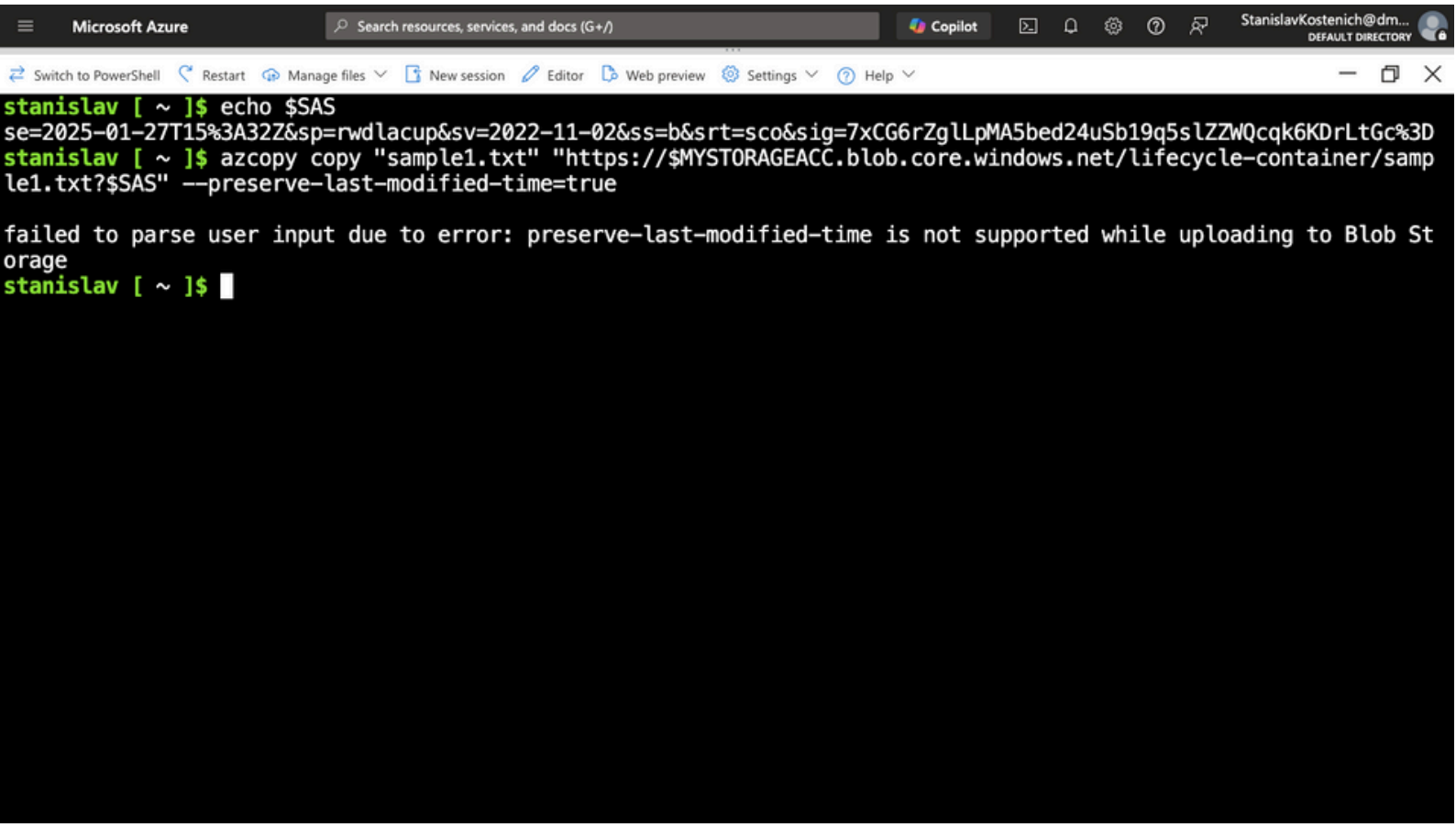
DEFAULT DIRECTORY
Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
stanislav [~]$ az storage blob metadata update \
--account-name $MYSTORAGEACC \
--container-name lifecycle-container \
--name sample1.txt \
--metadata created_at="2024-01-01T00:00:00Z" \
--sas-token "$SAS"
{
"client_request_id": "2d4b9634-dcbc-11ef-93da-00155d533892",
"date": "2025-01-27T14:37:04+00:00",
"encryption_key_sha256": null,
"encryption_scope": null,
"etag": "\"0x8DD3EE011BAB963\"",
"last_modified": "2025-01-27T14:37:04+00:00",
"request_id": "1a9de606-601e-0070-73c8-70fe47000000",
"request_server_encrypted": true,
"version": "2022-11-02",
"version_id": null
}
stanislav [~]$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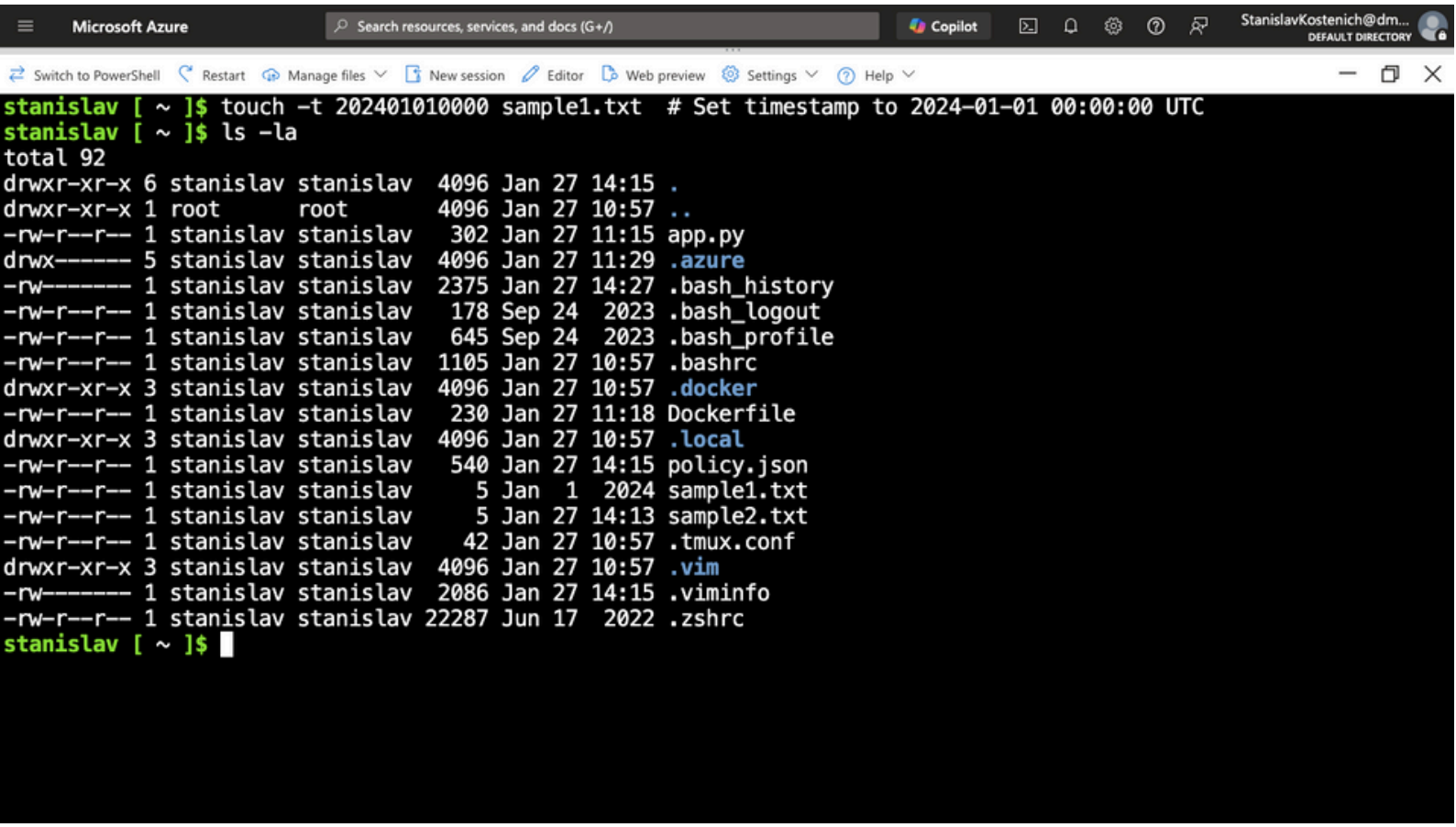
DEFAULT DIRECTORY
Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
stanislav [~]$ echo $SAS
se=2025-01-27T15%3A32Z&sp=rwdlacup&sv=2022-11-02&ss=b&srt=sco&sig=7xCG6rZglLpMA5bed24uSb19q5slZZWQcqk6KDrLtGc%3D
stanislav [~]$ azcopy copy "sample1.txt" "https://$MYSTORAGEACC.blob.core.windows.net/lifecycle-container/sample1.txt?$SAS" --preserve-last-modified-time=true
failed to parse user input due to error: preserve-last-modified-time is not supported while uploading to Blob Storage
stanislav [~]$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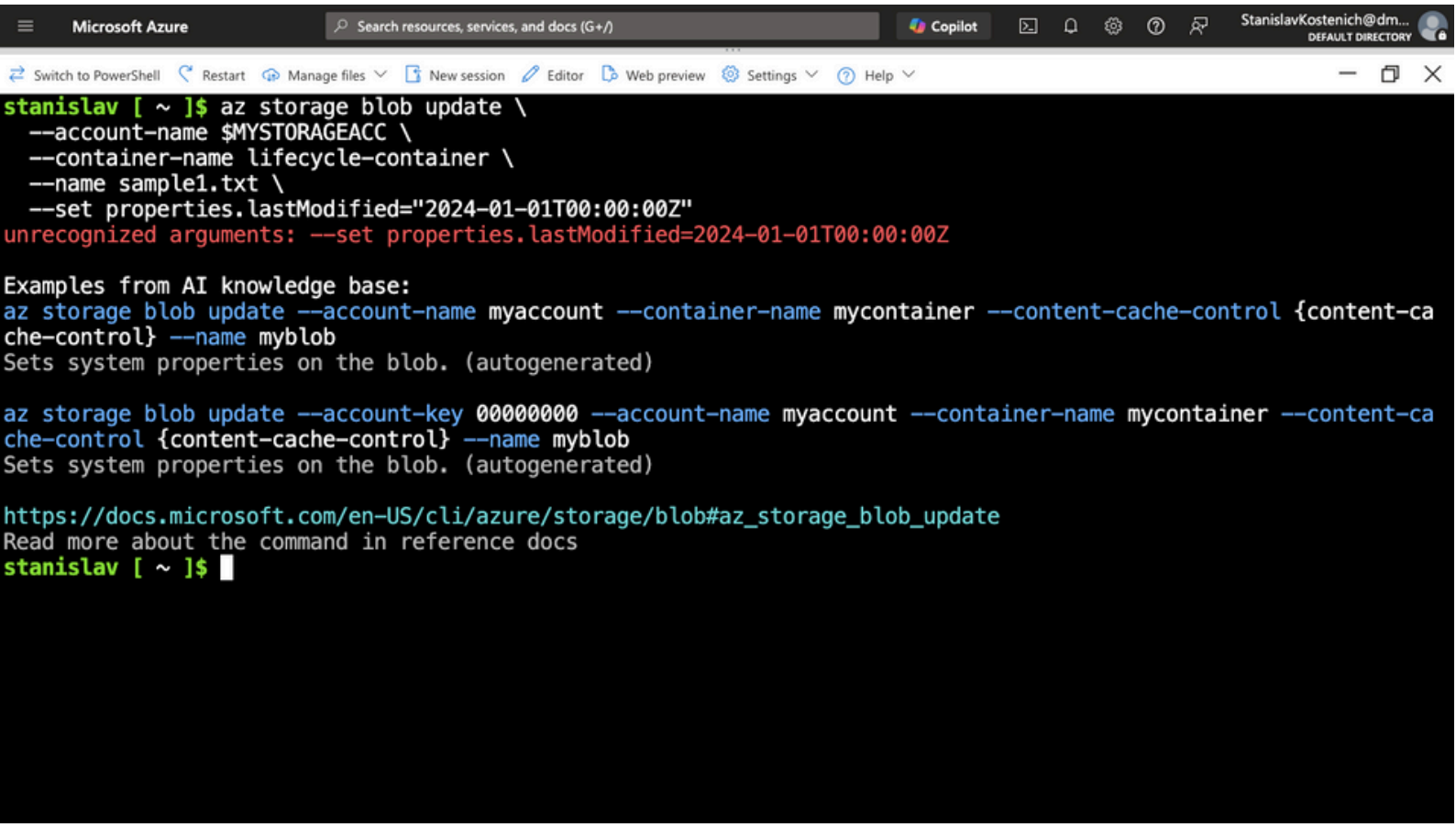
DEFAULT DIRECTORY
Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
stanislav [~]$ touch -t 202401010000 sample1.txt # Set timestamp to 2024-01-01 00:00:00 UTC
stanislav [~]$ ls -la
total 92
drwxr-xr-x 6 stanislav stanislav 4096 Jan 27 14:15 .
drwxr-xr-x 1 root   root   4096 Jan 27 10:57 ..
-rw-r--r-- 1 stanislav stanislav   302 Jan 27 11:15 app.py
drwx------ 5 stanislav stanislav 4096 Jan 27 11:29 .azure
-rw------- 1 stanislav stanislav 2375 Jan 27 14:27 .bash_history
-rw-r--r-- 1 stanislav stanislav   178 Sep 24 2023 .bash_logout
-rw-r--r-- 1 stanislav stanislav   645 Sep 24 2023 .bash_profile
-rw-r--r-- 1 stanislav stanislav 1105 Jan 27 10:57 .bashrc
drwxr-xr-x 3 stanislav stanislav 4096 Jan 27 10:57 .docker
-rw-r--r-- 1 stanislav stanislav   230 Jan 27 11:18 Dockerfile
drwxr-xr-x 3 stanislav stanislav 4096 Jan 27 10:57 .local
-rw-r--r-- 1 stanislav stanislav   540 Jan 27 14:15 policy.json
-rw-r--r-- 1 stanislav stanislav   5 Jan 1 2024 sample1.txt
-rw-r--r-- 1 stanislav stanislav   5 Jan 27 14:13 sample2.txt
-rw-r--r-- 1 stanislav stanislav   42 Jan 27 10:57 .tmux.conf
drwxr-xr-x 3 stanislav stanislav 4096 Jan 27 10:57 .vim
-rw------- 1 stanislav stanislav 2086 Jan 27 14:15 .viminfo
-rw-r--r-- 1 stanislav stanislav 22287 Jun 17 2022 .zshrc
stanislav [~]$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Switch to PowerShell
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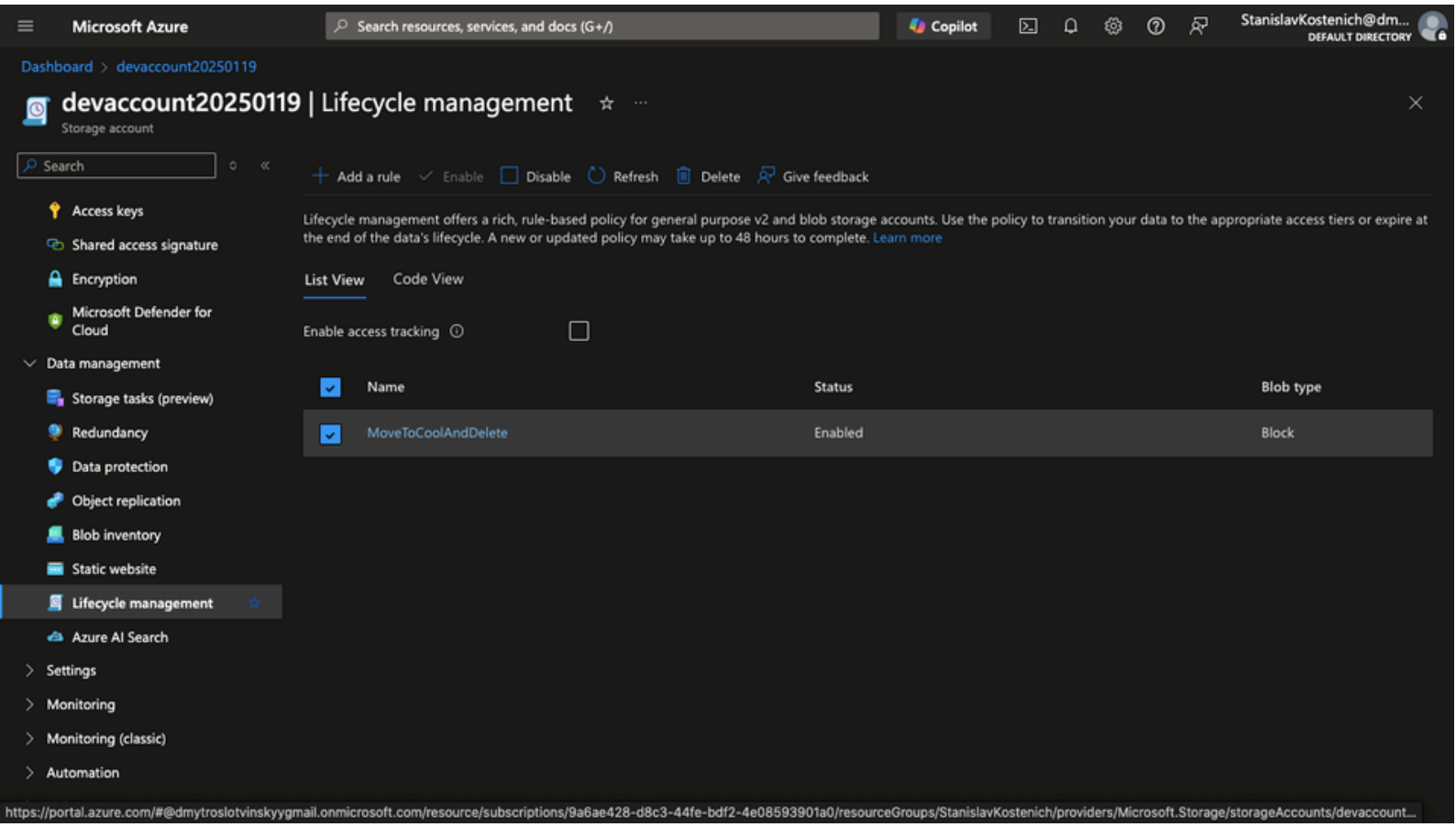
Help
stanislav [~]$ az storage blob update \
--account-name $MYSTORAGEACC \
--container-name lifecycle-container \
--name sample1.txt \
--set properties.lastModified="2024-01-01T00:00:00Z"
unrecognized arguments: --set properties.lastModified=2024-01-01T00:00:00Z
Examples from AI knowledge base:
az storage blob update --account-name myaccount --container-name mycontainer --content-cache-control {content-cache-control} --name myblob
Sets system properties on the blob. (autogenerated)
az storage blob update --account-key 00000000 --account-name myaccount --container-name mycontainer --content-cache-control {content-cache-control} --name myblob
Sets system properties on the blob. (autogenerated)
https://docs.microsoft.com/en-US/cli/azure/storage/blob#az_storage_blob_update
Read more about the command in reference docs
stanislav [~]$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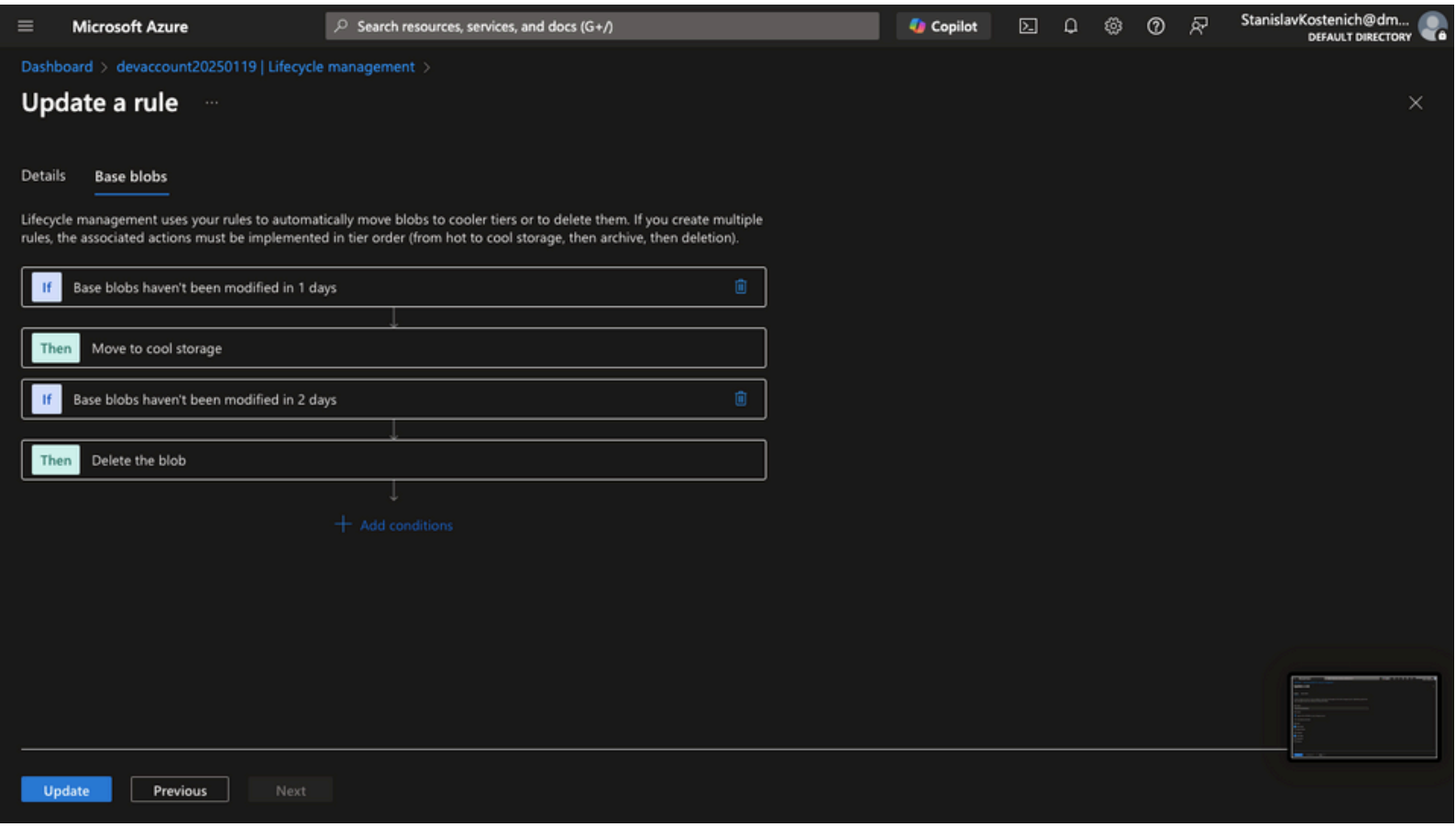
DEFAULT DIRECTORY
Dashboard > devaccount20250119
devaccount20250119 | Lifecycle management
Storage account
Search
Add a rule
Enable
Disable
Refresh
Delete
Give feedback
Lifecycle management offers a rich, rule-based policy for general purpose v2 and blob storage accounts. Use the policy to transition your data to the appropriate access tiers or expire at the end of the data's lifecycle. A new or updated policy may take up to 48 hours to complete. Learn more
List View
Code View
Enable access tracking
Name
Status
Blob type
MoveToCoolAndDelete
Enabled
Block
Access keys
Shared access signature
Encryption
Microsoft Defender for Cloud
Data management
Storage tasks (preview)
Redundancy
Data protection
Object replication
Blob inventory
Static website
Lifecycle management
Azure AI Search
Settings
Monitoring
Monitoring (classic)
Automation
https://portal.azure.com/#@dmytroslotvinskyygmail.onmicrosoft.com/resource/subscriptions/9a6ae428-d8c3-44fe-bdf2-4e08593901a0/resourceGroups/StanislavKostenich/providers/Microsoft.Storage/storageAccounts/devaccount...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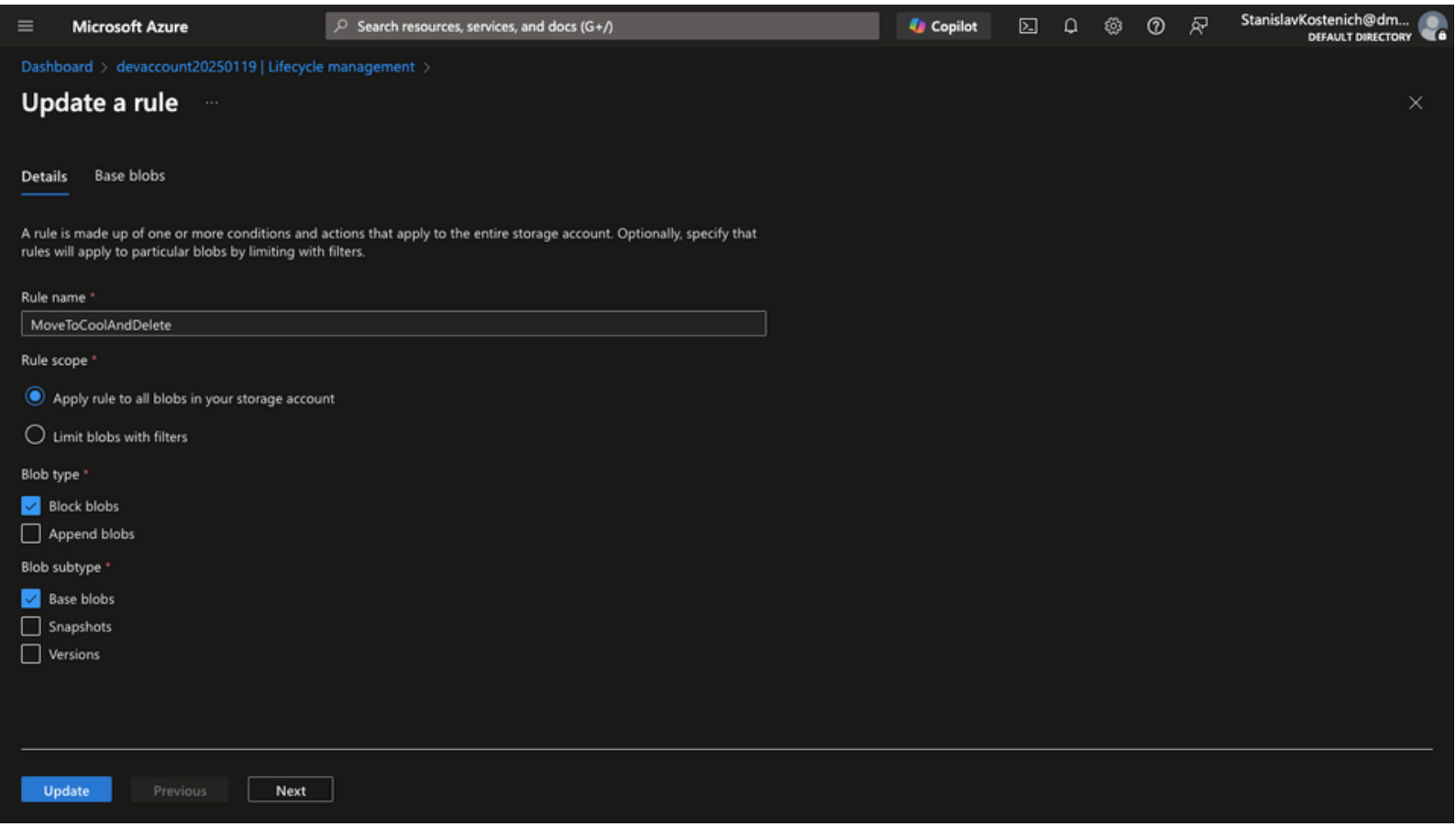
DEFAULT DIRECTORY
Dashboard > devaccount20250119 | Lifecycle management >
Update a rule
Details
Base blobs
Lifecycle management uses your rules to automatically move blobs to cooler tiers or to delete them. If you create multiple rules, the associated actions must be implemented in tier order (from hot to cool storage, then archive, then deletion).
If
Base blobs haven't been modified in 1 days
Then
Move to cool storage
If
Base blobs haven't been modified in 2 days
Then
Delete the blob
Add conditions
Update
Previous
Next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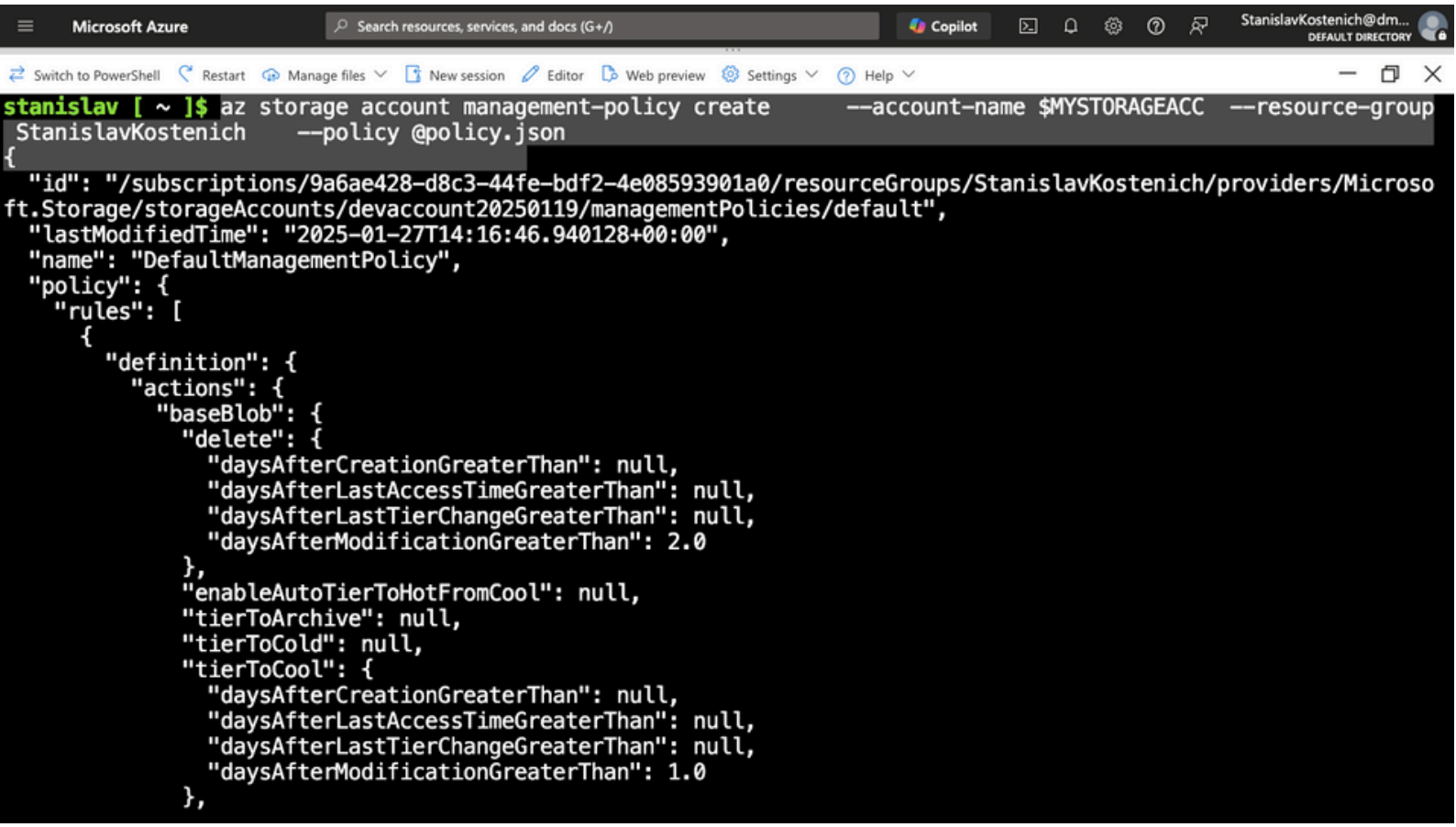
Update a rule
Details
Base blobs
A rule is made up of one or more conditions and actions that apply to the entire storage account. Optionally, specify that rules will apply to particular blobs by limiting with filters.
Rule name *
MoveToCoolAndDelete
Rule scope *
Apply rule to all blobs in your storage account
Limit blobs with filters
Blob type *
Block blobs
Append blobs
Blob subtype *
Base blobs
Snapshots
Versions
Update
Previous
Next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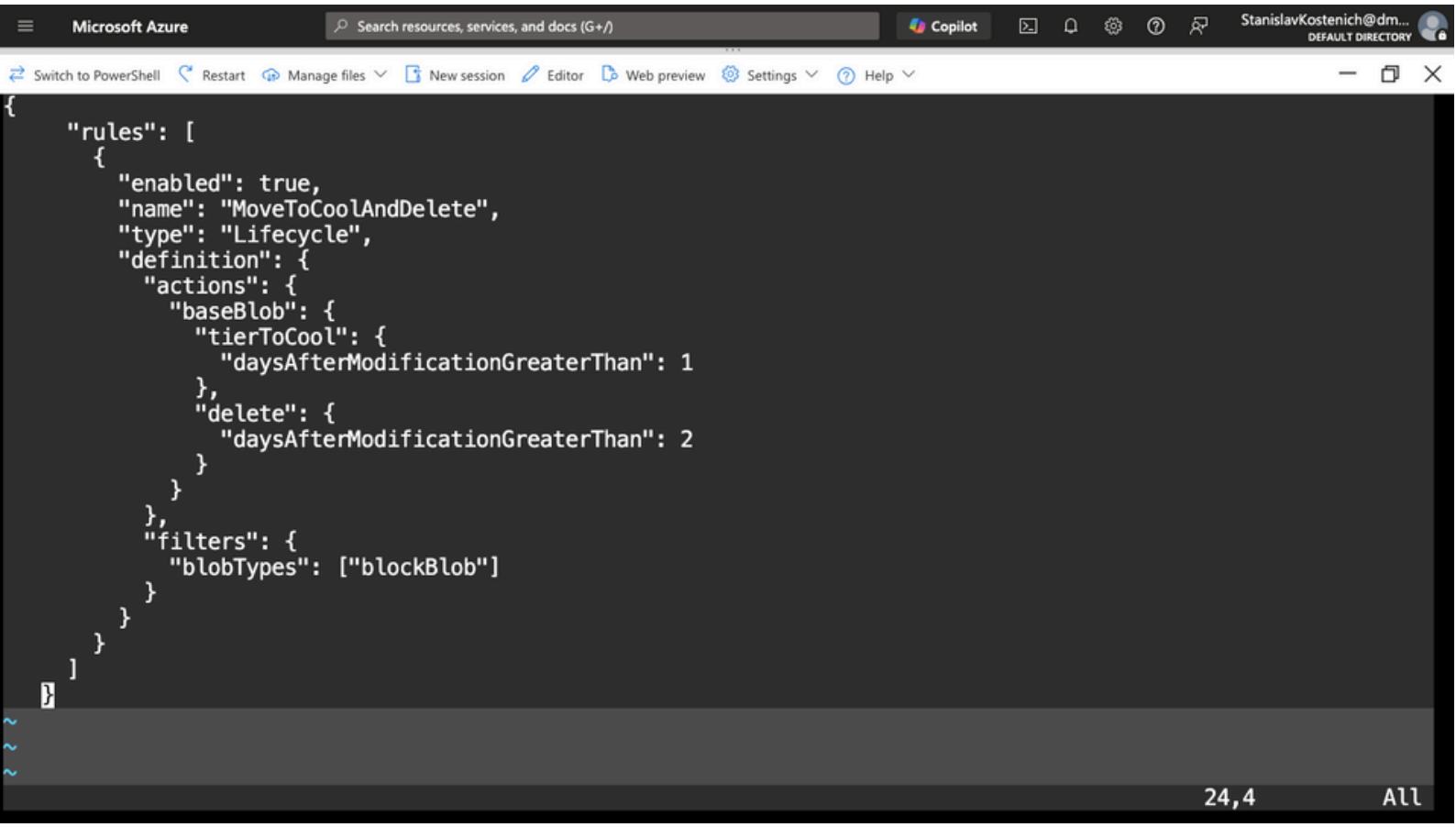
DEFAULT DIRECTORY
Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
stanislav [~]$ az storage account management-policy create --account-name $MYSTORAGEACC --resource-group StanislavKostenich --policy @policy.json
{
"id": "/subscriptions/9a6ae428-d8c3-44fe-bdf2-4e08593901a0/resourceGroups/StanislavKostenich/providers/Microsoft.Storage/storageAccounts/devaccount20250119/managementPolicies/default",
"lastModifiedTime": "2025-01-27T14:16:46.940128+00:00",
"name": "DefaultManagementPolicy",
"policy": {
"rules": [
{
"definition": {
"actions": {
"baseBlob": {
"delete": {
"daysAfterCreationGreaterThan": null,
"daysAfterLastAccessTimeGreaterThan": null,
"daysAfterLastTierChangeGreaterThan": null,
"daysAfterModificationGreaterThan": 2.0
},
"enableAutoTierToHotFromCool": null,
"tierToArchive": null,
"tierToCold": null,
"tierToCool": {
"daysAfterCreationGreaterThan": null,
"daysAfterLastAccessTimeGreaterThan": null,
"daysAfterLastTierChangeGreaterThan": null,
"daysAfterModificationGreaterThan": 1.0
},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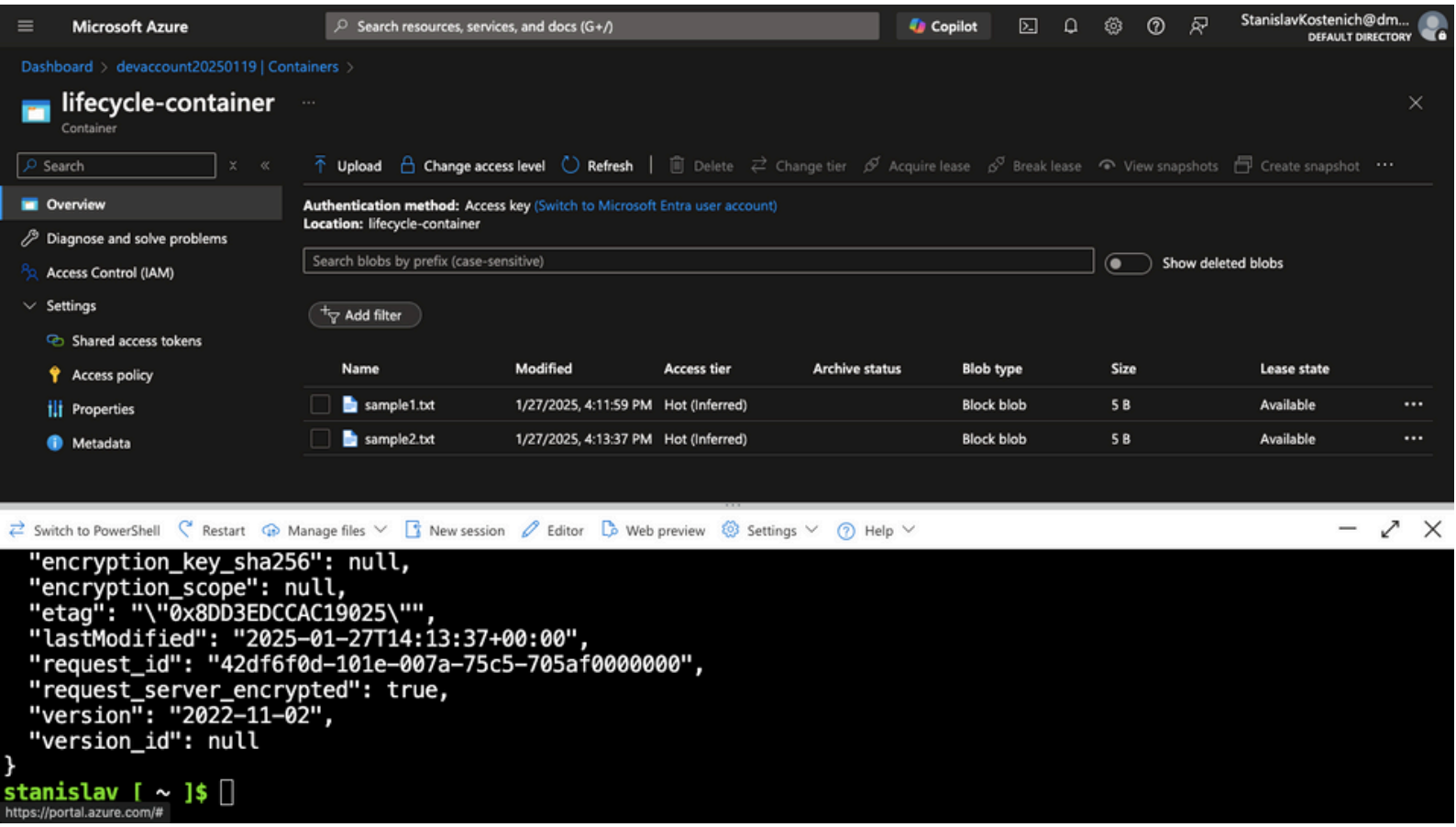
DEFAULT DIRECTORY
Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
{
"rules": [
{
"enabled": true,
"name": "MoveToCoolAndDelete",
"type": "Lifecycle",
"definition": {
"actions": {
"baseBlob": {
"tierToCool": {
"daysAfterModificationGreaterThan": 1
},
"delete": {
"daysAfterModificationGreaterThan": 2
}
}
},
"filters": {
"blobTypes": ["blockBlob"]
}
}
}
]
}
24,4
All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Show deleted blobs
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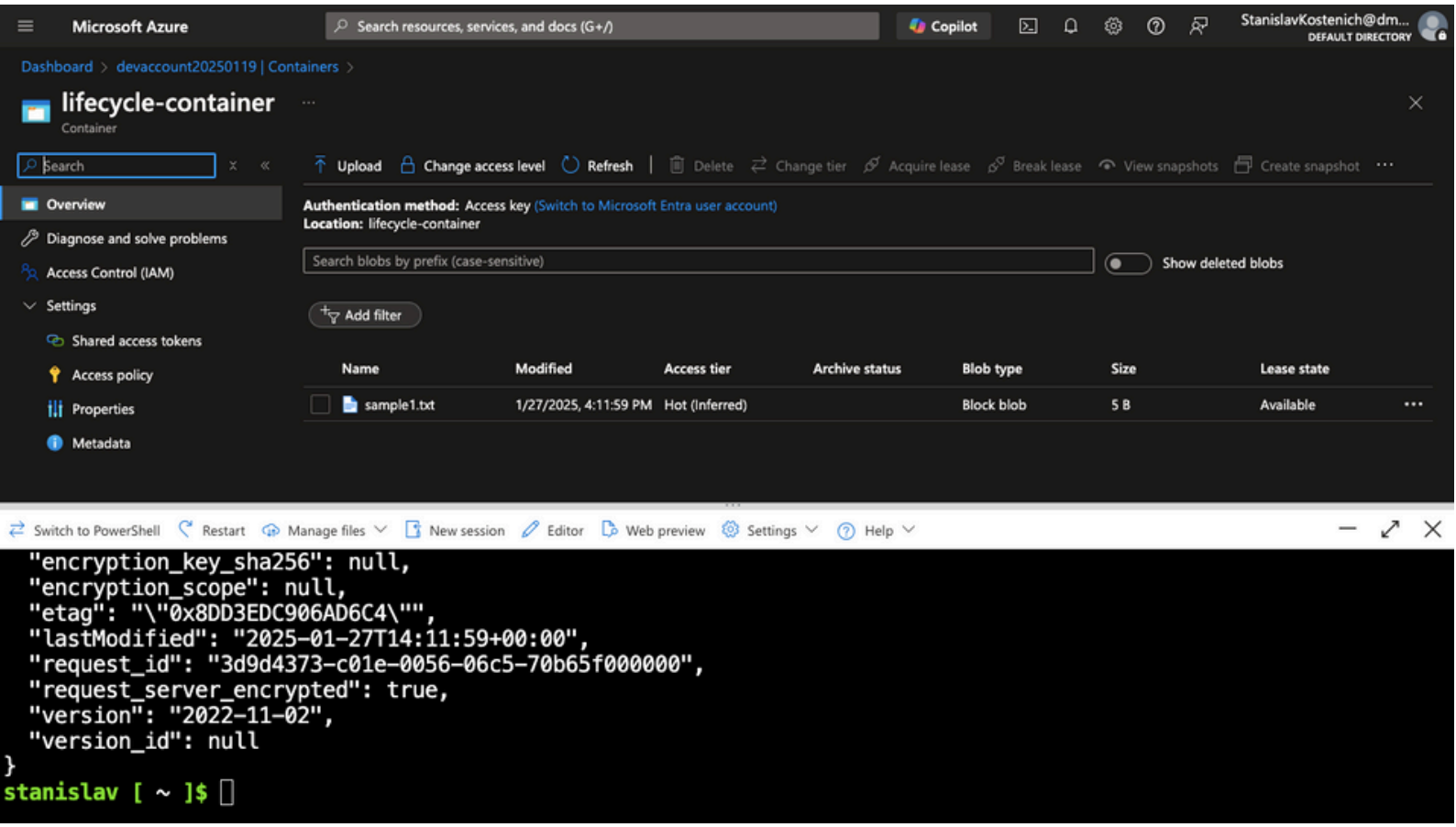
Access tier
Archive status
Blob type
Size
Lease state
sample1.txt
1/27/2025, 4:11:59 PM
Hot (Inferred)
Block blob
5 B
Available
sample2.txt
1/27/2025, 4:13:37 PM
Hot (Inferred)
Block blob
5 B
Available

Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
"encryption_key_sha256": null,
"encryption_scope": null,
"etag": "\"0x8DD3EDCCAC19025\"",
"lastModified": "2025-01-27T14:13:37+00:00",
"request_id": "42df6f0d-101e-007a-75c5-705af0000000",
"request_server_encrypted": true,
"version": "2022-11-02",
"version_id": null
}
stanislav [~]$
https://portal.azure.com/#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Name
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Access tier
Archive status
Blob type
Size
Lease state
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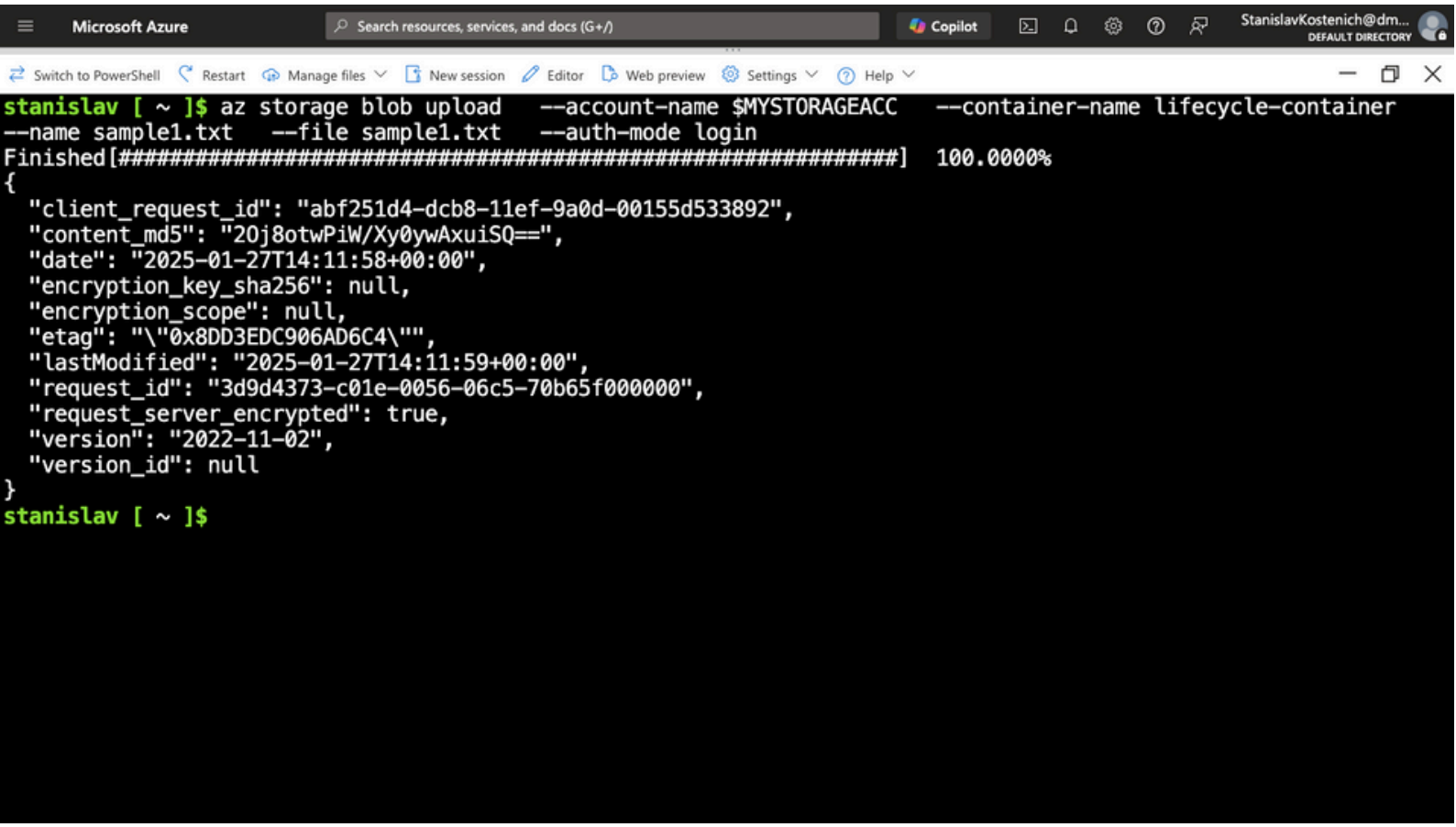
1/27/2025, 4:11:59 PM
Hot (Inferred)
Block blob
5 B
Available

Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
"encryption_key_sha256": null,
"encryption_scope": null,
"etag": "\"0x8DD3EDC906AD6C4\"",
"lastModified": "2025-01-27T14:11:59+00:00",
"request_id": "3d9d4373-c01e-0056-06c5-70b65f000000",
"request_server_encrypted": true,
"version": "2022-11-02",
"version_id": null
}
stanislav [~]$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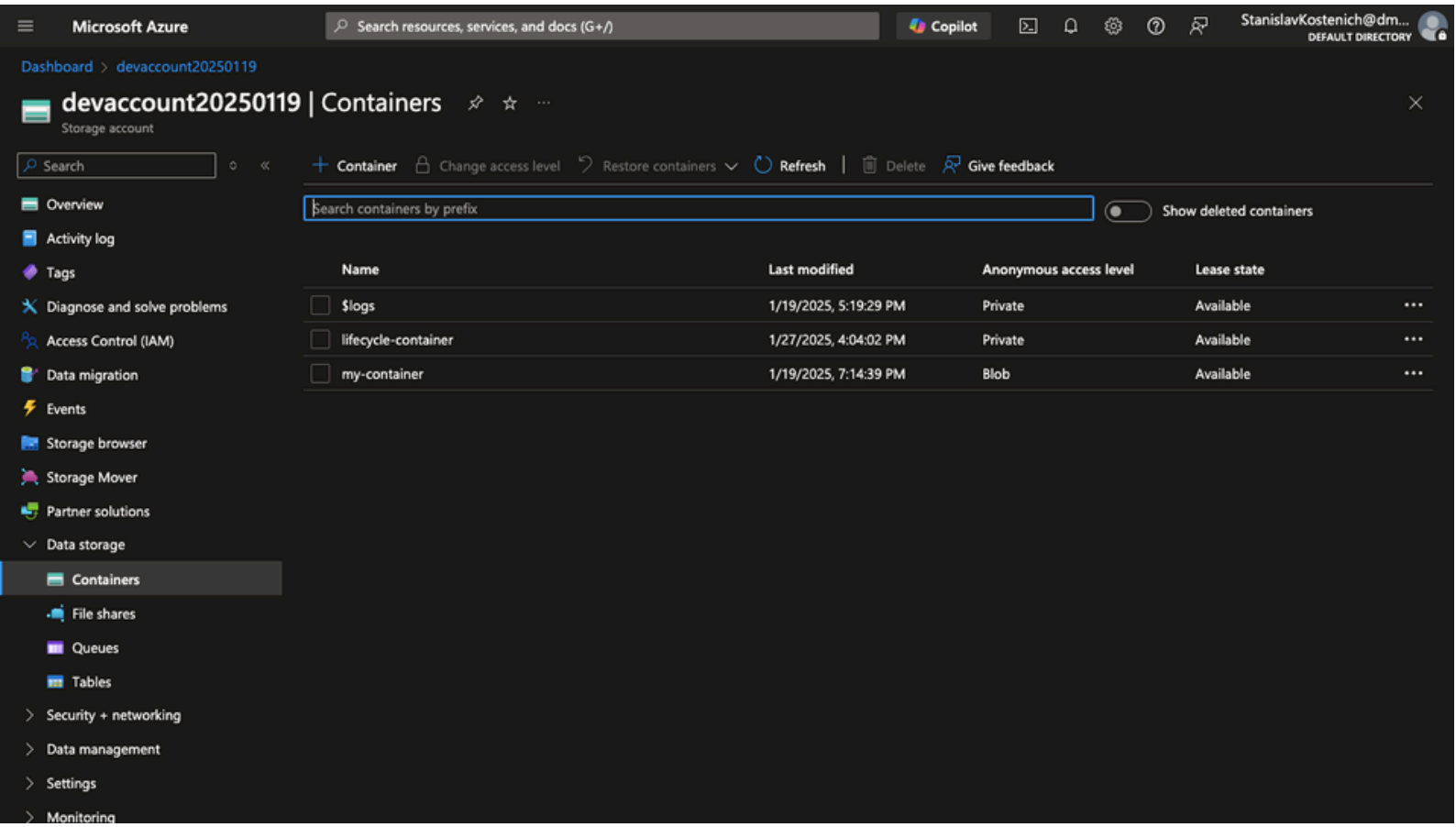
DEFAULT DIRECTORY
Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
stanislav [~]$ az storage blob upload --account-name $MYSTORAGEACC --container-name lifecycle-container
--name sample1.txt --file sample1.txt --auth-mode login
Finished[###] 100.0000%
{
"client_request_id": "abf251d4-dcb8-11ef-9a0d-00155d533892",
"content_md5": "2Oj8otwPiW/Xy0ywAxuiSQ==",
"date": "2025-01-27T14:11:58+00:00",
"encryption_key_sha256": null,
"encryption_scope": null,
"etag": "\"0x8DD3EDC906AD6C4\"",
"lastModified": "2025-01-27T14:11:59+00:00",
"request_id": "3d9d4373-c01e-0056-06c5-70b65f000000",
"request_server_encrypted": true,
"version": "2022-11-02",
"version_id": null
}
stanislav [~]$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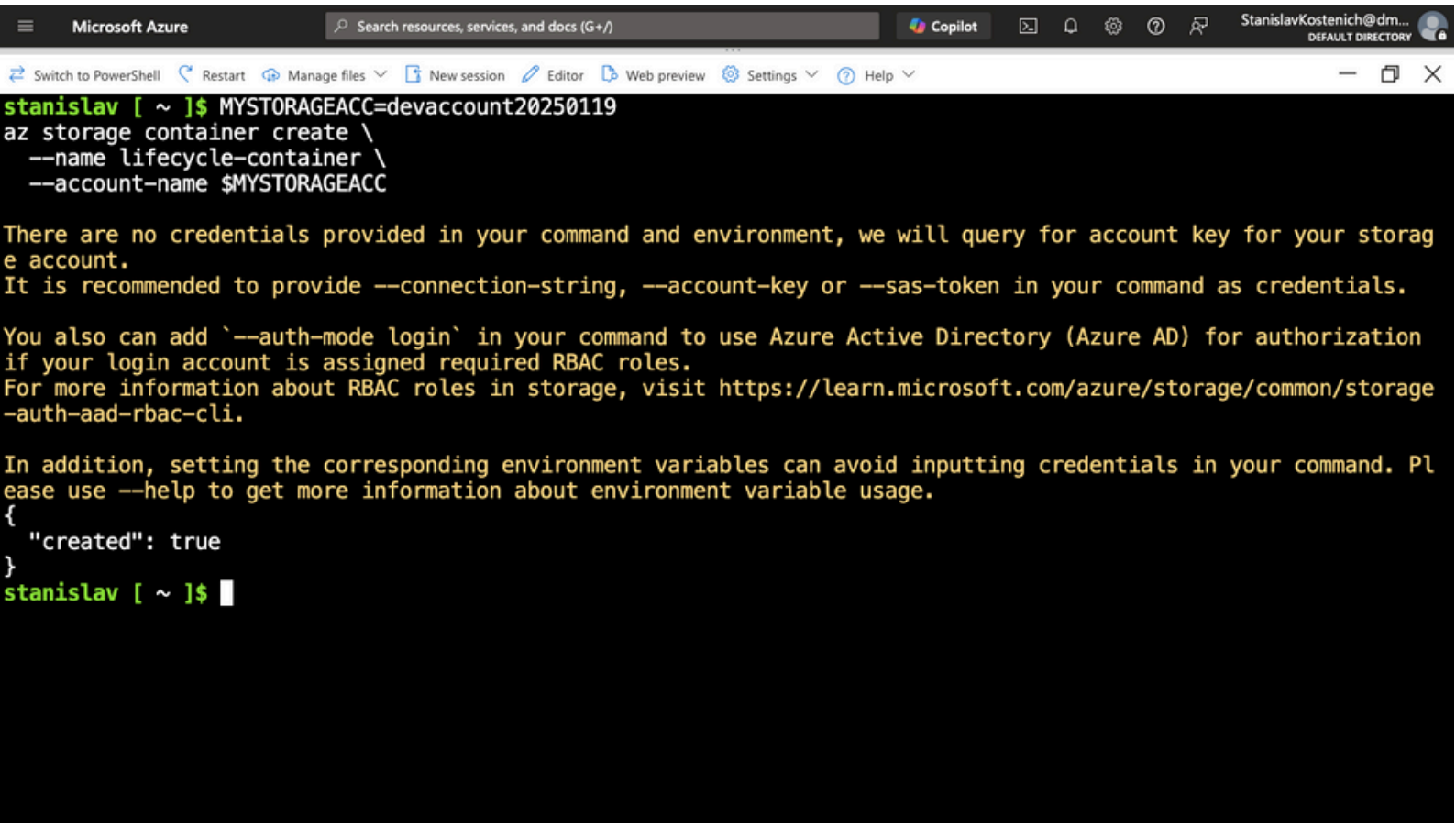
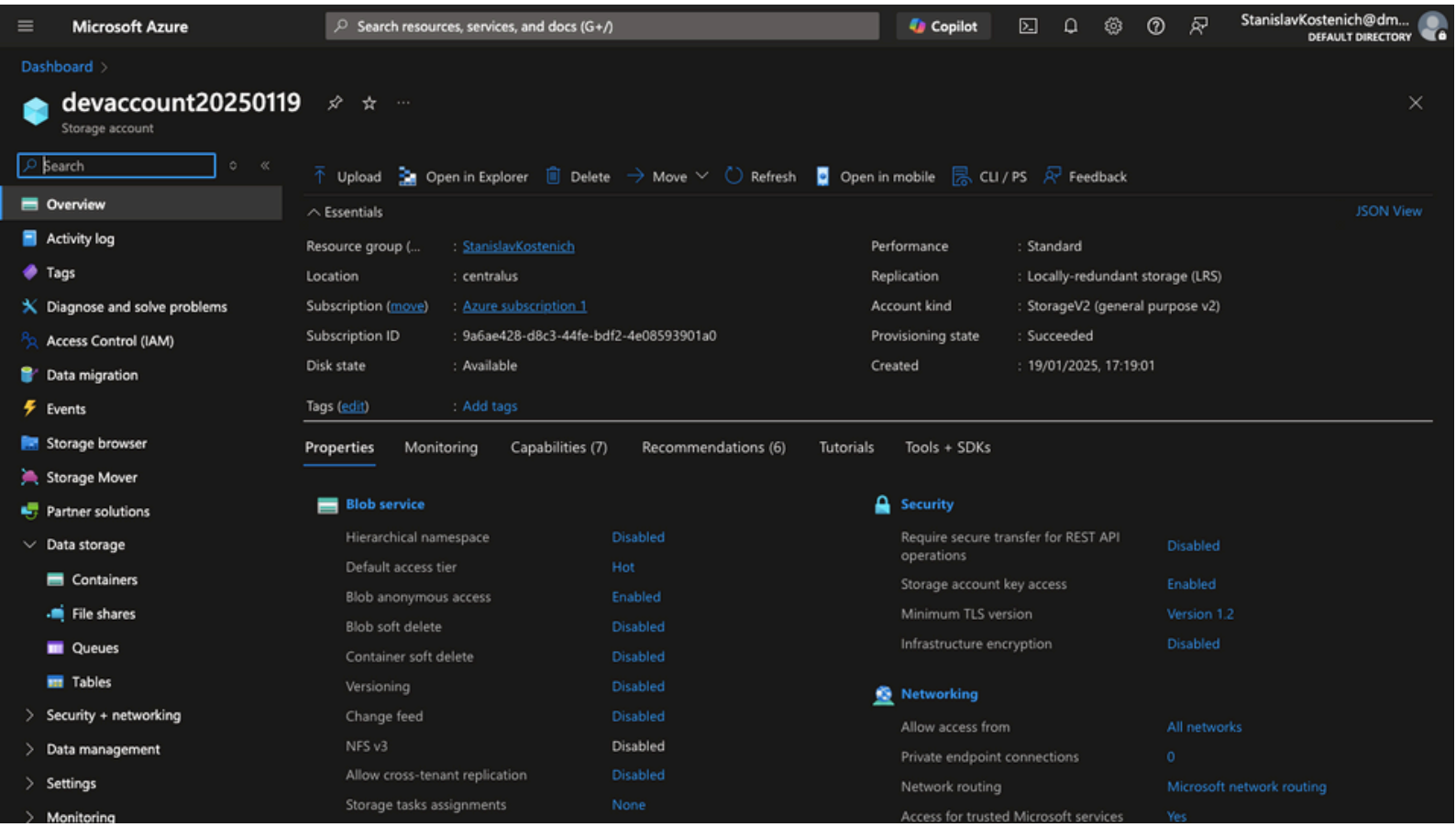
DEFAULT DIRECTORY
Dashboard > devaccount20250119
devaccount20250119 | Containers
Storage account
Search
Overview
Activity log
Tags
Diagnose and solve problems
Access Control (IAM)
Data migration
Events
Storage browser
Storage Mover
Partner solutions
Data storage
Containers
File shares
Queues
Tables
Security + networking
Data management
Settings
Monitoring
Container
Change access level
Restore containers
Refresh
Delete
Give feedback
Search containers by prefix
Show deleted containers
Name
Last modified
Anonymous access level
Lease state
$logs
1/19/2025, 5:19:29 PM
Private
Available
lifecycle-container
1/27/2025, 4:04:02 PM
Private
Available
my-container
1/19/2025, 7:14:39 PM
Blob
Available


Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
StanislavKostenich@dm...
DEFAULT DIRECTORY
Switch to PowerShell
Restart
Manage files
New session
Editor
Web preview
Settings
Help
stanislav [~]$ MYSTORAGEACC=devaccount20250119
az storage container create \
--name lifecycle-container \
--account-name $MYSTORAGEACC
There are no credentials provided in your command and environment, we will query for account key for your storag
e account.
It is recommended to provide --connection-string, --account-key or --sas-token in your command as credentials.
You also can add `--auth-mode login` in your command to use Azure Active Directory (Azure AD) for authorization
if your login account is assigned required RBAC roles.
For more information about RBAC roles in storage, visit https://learn.microsoft.com/azure/storage/common/storage
-auth-aad-rbac-cli.
In addition, setting the corresponding environment variables can avoid inputting credentials in your command. Pl
ease use --help to get more information about environment variable usage.
{
"created": true
}
stanislav [~]$


Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
StanislavKostenich@dm...
DEFAULT DIRECTORY
Dashboard
devaccount20250119
Storage account
Search
Overview
Activity log
Tags
Diagnose and solve problems
Access Control (IAM)
Data migration
Events
Storage browser
Storage Mover
Partner solutions
Data storage
Containers
File shares
Queues
Tables
Security + networking
Data management
Settings
Monitoring
Upload
Open in Explorer
Delete
Move
Refresh
Open in mobile
CLI / PS
Feedback
Essentials
JSON View
Resource group (... : StanislavKostenich
Location : centralus
Subscription (move) : Azure subscription 1
Subscription ID : 9a6ae428-d8c3-44fe-bdf2-4e08593901a0
Disk state : Available
Performance : Standard
Replication : Locally-redundant storage (LRS)
Account kind : StorageV2 (general purpose v2)
Provisioning state : Succeeded
Created : 19/01/2025, 17:19:01
Tags (edit) : Add tags
Properties
Monitoring
Capabilities (7)
Recommendations (6)
Tutorials
Tools + SDKs
Blob service
Hierarchical namespace Disabled
Default access tier Hot
Blob anonymous access Enabled
Blob soft delete Disabled
Container soft delete Disabled
Versioning Disabled
Change feed Disabled
NFS v3 Disabled
Allow cross-tenant replication Disabled
Storage tasks assignments None
Security
Require secure transfer for REST API operations Disabled
Storage account key access Enabled
Minimum TLS version Version 1.2
Infrastructure encryption Disabled
Networking
Allow access from All networks
Private endpoint connections 0
Network routing Microsoft network routing
Access for trusted Microsoft services Yes

Practical Task 2: Lifecycle Management for Blob Storage

Implement lifecycle management policies to optimize storage costs.

Requirements:

1. Create a storage account and a Blob container named "lifecycle-container."
2. Upload multiple files of varying sizes to the container.
3. Create a lifecycle management policy to move blobs to the Cool tier after 30 days and delete blobs older than 90 days.
4. Simulate policy execution by manually testing with different file creation timestamps.
5. Verify that blobs are moved or deleted according to the policy.

Practical Task 3: Implementing an Azure Queue for Message Storage

Create and manage an Azure Queue to store and process messages.