Fedora on the World’s Computer

Onboarding Fedora to Microsoft Azure

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#dustymabe on libera.chat
Hello!

I’m Jack

Long time Fedora person

- I was around when all this started
  - Marketing, Ambassadors
- AlmaLinux Contributor
- I help make Linux awesome on Azure
  - We’re hiring!
Before we start:
Pick a name. Any name.
Keep it Clean.
Microsoft Azure

Azure is the world’s computer

- 140 Countries
- 200 Datacenters
- 175,000 Miles of fiber
- 60% Cores and Images are Linux

https://infrastructuremap.microsoft.com/
Fedora was missing 😔

Until today!

Challenges onboarding Fedora onto Azure
- This has been worked on for a long time
- Azure Marketplace
  - Focused on Commercial Offerings
  - Business Requirements (SLA, etc.)
  - Legal
- Agents and Extensions
  - WALinuxAgent
Now... Azure Community Galleries

Allows users/organizations to share images publicly

Why share to the community?

As a content publisher, you might want to share a gallery to the community:

- If you have non-commercial, non-proprietary content to share widely on Azure.
- You want greater control over the number of versions, regions, and the duration of image availability.
- You want to quickly share daily or nightly builds with your customers.
- You don’t want to deal with the complexity of multi-tenant authentication when sharing with multiple tenants on Azure.

https://docs.microsoft.com/en-us/azure/virtual-machines/azure-compute-gallery#community
Azure Community Galleries

Projects can create, upload and share their images to ALL Azure users

- 100% Free (image storage costs apply)
- Standard image creation process
- Projects provide their own legal agreement
  - Retain the same license as the upstream project
- Community Supported
Fedora and FCOS

- FCOS Images are already built
  - Stayed Tuned for the Dusty Mabe Show!
- Fedora Images on the way
  - https://pagure.io/fedora-kickstarts/pull-request/904
- What about WSL2?
  - We have hurdles. We’ll get there.
Fedora CoreOS and Microsoft Azure
Who am I?

The Dusty Mabe!

Long story short, I...

- Have a wife and 2 kids (and 2 dogs)
- Live in North Carolina
- Enjoy learning and experimenting with new technologies
- Am an Engineer at Red Hat
  - Working on Fedora CoreOS and Red Hat CoreOS (OpenShift)
  - Previously involved in Atomic Host and the Fedora Cloud working group
In Fedora CoreOS...

- We’ve had Azure images since our very first release
  - fedora-coreos-31.20191210.3.0-azure.x86_64.vhd.xz
- And CI since the end of March 2022
But the UX is lacking

Users need to download, upload, and create images first!

<table>
<thead>
<tr>
<th>Cloud Launchable</th>
<th>Bare Metal &amp; Virtualized</th>
<th>For Cloud Operators</th>
</tr>
</thead>
</table>

**Alibaba Cloud**
(qcow2.xz)
36.20220716.3.1 stable
Download
Verify signature & SHA256

**AWS**
(vmdk.xz)
36.20220716.3.1 stable
Download
Verify signature & SHA256

**Azure**
(vhd.xz)
36.20220716.3.1 stable
Download
Verify signature & SHA256

**Azure Stack**
(vhd.xz)
36.20220716.3.1 stable
Download
Verify signature & SHA256
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**Downloading an Azure image**

Fedora CoreOS is designed to be updated automatically, with different schedules per stream. Once you have picked the relevant stream, download, verify, and decompress the latest Azure image:

```bash
stream="stable"
coreos-installer download --decompress -s "$stream"
```

Alternatively, you can manually download an Azure image from the download page. Verify the download, following the instructions on that page, and decompress it.

---

**Uploading the image to Azure**

1. Create any resources that don’t already exist in your Azure account:

   ```bash
   az_region="westus2"
az_resource_group="my-group"az_storage_account="mystorageacct"az_container="my-container"
   # Create resource group
   az group create -l "$az_region" -n "$az_resourc caz_storage account create "$az_resource_group"
   # Create storage account for uploading FCOS image
   az storage account create -g "$az_resource_group"
   # Retrieve connection string for storage account
   cs=$[az storage account show-connection-string -r "$az_resource_group"
   # Create storage container for uploading FCOS image
   az storage container create --connection-string "$cs"
   ```

2. Create an FCOS image:

   ```bash
downloaded_image_file="/path/to/image.vhd"
az_image_name="my-fcos-image"az_image_blob="$az_image_name.vhd"
# Upload image blob
az storage blob upload --connection-string "$cs"
# Create the image
az image create -n "$az_image_name" -g "$az_resource_group"
# Delete the uploaded blob
az storage blob delete --connection-string "$cs"
```
But the UX is lacking

Users need to download, upload, and create images first!

Launching a VM instance

1. Launch a VM. Your Ignition configuration can be passed to the VM as custom data, or you can skip passing custom data if you just want SSH access. Your SSH public key from ~/.ssh will automatically be added to the VM. This provides an easy way to test out FCOS without first creating an Ignition config.

   **Example launching Azure image**

   ```bash
   az_vm_name="my-fcos-vm"
   ignition_path="./config.ign"
   az vm create -n "$az_vm_name" -g "$az_resource

   2. You now should be able to SSH into the instance using the associated IP address.

   **Example connecting**

   ```bash
   ssh core@<ip address>```
But the UX is lacking

Users need to download, upload, and create images first!

<table>
<thead>
<tr>
<th>AWS</th>
<th>GCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>stable</td>
<td>stable</td>
</tr>
<tr>
<td>Regions</td>
<td></td>
</tr>
<tr>
<td>- Region: us-east-1</td>
<td>Project: fedora-coreos-cloud</td>
</tr>
<tr>
<td>Release: 36.2022.0716.3.1</td>
<td>Family: fedora-coreos-stable (details)</td>
</tr>
<tr>
<td>Image: ami-03929f88dfb4b1c1c</td>
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## AWS/GCP/Azure Image Salad

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<th>AWS</th>
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<th>Azure</th>
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<tbody>
<tr>
<td>- Create an image</td>
<td>- Create and Image Family</td>
<td>- Create a Community Gallery</td>
</tr>
<tr>
<td>- Mark it public.</td>
<td>- Create Image(s)</td>
<td>- Create an Image Definition</td>
</tr>
<tr>
<td></td>
<td>- Add them to Image Family</td>
<td>- Create Image(s)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Add them as Image versions to Image Definition</td>
</tr>
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</table>
What’s next?

Hoping to have this finalized for Fedora 37!

- Automate addition of images to image galleries
  - Add functionality to our (FCOS) golang SDK (mantle)

- Addition of 64 bit ARM images
  - Still in tech preview for now, exiting soon
Demo
How can I get involved?

**Fedora Cloud SIG**

- Cloud SIG - Fedora Project Wiki
  - [https://pagure.io/cloud-sig](https://pagure.io/cloud-sig)
- #fedora-cloud on Libera Chat
- Bi-weekly meetings every other Thursday at 15:00 UTC

**Fedora CoreOS Working Group**

- Issues/Forum/Docs
  - [https://github.com/coreos/fedora-coreos-tracker](https://github.com/coreos/fedora-coreos-tracker)
  - [https://discussion.fedoraproject.org/tag/coreos](https://discussion.fedoraproject.org/tag/coreos)
- Mailing list: coreos@lists.fedoraproject.org
- #fedora-coreos on libera.chat
- #coreos:fedoraproject.org on Matrix
- Weekly meetings at 16:30 UTC on Wednesday
Thank you!