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# Refine — AWS Marketplace Deployment Guide

**Audience:** customers who have subscribed to Blacktip Refine through AWS Marketplace and are about to deploy it in their own AWS account.

This is the **Marketplace-specific** deployment path. It differs from a direct-sales Refine install only in how you obtain the license — everything else is identical.

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## At a glance — the 5-step path

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1. **Subscribe** to *Blacktip Refine — Multi-Cloud Cost Intelligence* in AWS Marketplace.
2. **Launch the CloudFormation stack** in your own AWS account (one-click from the listing). The EC2 immediately pulls the Refine container from AWS Public ECR and enters a *waiting-for-license* loop.
3. **Submit the license request** at <https://blacktip-ops.com/marketplace-license>, including the `DeliveryBucketName` from your stack Outputs and the cloud accounts Refine will monitor.
4. **Blacktip emails you a ~500-byte `refine.license` file** with a one-line `aws s3 cp` command. You drop it into your `DeliveryBucketName` from any shell that can reach your AWS account (~5 seconds). A license-watcher on the EC2 polls the bucket every 60 seconds, installs the license, and restarts the container.
5. **Open the `RefineUr1`** from your stack Outputs, complete admin bootstrap, and add your cloud accounts.

Total elapsed: typically **10–30 minutes** from subscribe to first dashboard view (most of which is the human latency between your form submission and the license email from Blacktip).

**Why you do the S3 upload instead of Blacktip.** *Cross-partition AWS IAM doesn't exist — a commercial Blacktip principal cannot write to a GovCloud bucket, and granting Blacktip cross-account write to commercial buckets would require a bucket policy in your CFN that broadens blast radius. Email + customer-upload works identically on Commercial AWS and GovCloud, keeps least-privilege on your delivery bucket, and adds ~5 seconds of effort.*

**GovCloud variant.** *GovCloud customers follow a slightly different path: the Marketplace CFN uses a delivery-ZIP model (license + image tarball + day-2 scripts in one upload) because air-gapped GovCloud environments can't pull from public ECR. The S3 upload step is the same — you receive a ZIP via email and upload it to your bucket; only the payload size differs.*

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## What you need before you start

Item	Why
<b>AWS account</b> with permission to launch CloudFormation in your target region	The stack creates EC2, IAM, S3, optionally ALB resources.
<b>Choice of region</b>	Where Refine will run. Closer to your cloud-account data exports = better. US East / US West are typical.
<b>A VPC + public subnet</b> in that region	The CFN deploys into an existing VPC. The default VPC works.
<b>Decision: HTTPS or HTTP?</b>	Production deployments should enable HTTPS (CFN creates an Application Load Balancer + uses an ACM certificate you supply). Trials can start on HTTP.
<b>A contact email</b>	Where Blacktip emails your license + activation code.

## Step 1 — Subscribe in AWS Marketplace

1. Visit the listing: <https://aws.amazon.com/marketplace/pp/prodview->
2. Click **Continue to Subscribe** → review terms → **Accept Terms**.
3. Wait for the subscription to activate (~1 minute).
4. Click **Continue to Configuration**.

The subscription itself is free (BYOL); your AWS bill only reflects the underlying EC2/EBS/ALB resources the stack provisions in your own account.

## Step 2 — Launch the CloudFormation stack

1. From the Configuration page, click **Launch CloudFormation**.
2. AWS opens the CloudFormation console with the Marketplace template pre-loaded.
3. Fill in the parameters:

Parameter	Recommended	Notes
<b>Instance type</b>	<code>t3.medium</code>	Sized for 1–10 cloud accounts. Bump to <code>m6i.xlarge</code> for 50+ accounts.
<b>SSH key pair</b>	(your existing key)	Required if you want SSH; optional if you'll use SSM Session Manager.
<b>VPC + Subnet</b>	(your existing public subnet)	Default VPC works for evaluations.
<b>Allowed CIDR for Refine UI</b>	your office IP or <code>0.0.0.0/0</code> (if behind ALB+HTTPS)	Tighten in production.
<b>Enable HTTPS via ALB</b>	<code>true</code> for production	Requires an ACM certificate in the same region.
<b>ACM certificate ARN</b>	(your wildcard or specific cert)	Only needed if HTTPS=true.
<b>Customer name (optional)</b>	your team / cost-center name	Applied as a tag for cost allocation.
<b>Marketplace fulfillment mode</b>	<code>BYOL</code> (default)	Don't change unless instructed by Blacktip Solutions.
<b>Refine image URI</b>	(preset to <code>:latest</code> )	Default tracks the latest Refine release. To pin to a specific version, set to <code>public.ecr.aws/blacktip/refine: vX.Y.Z</code> — Watchtower won't update a pinned tag.
<b>Enable automatic updates</b>	<code>true</code> (default)	Deploys a Watchtower sidecar that polls AWS Public ECR for new Refine images on a schedule and rolls the container when one appears. Set to <code>false</code> to manage updates manually.
<b>Auto-update schedule (cron, UTC)</b>	<code>0 0 3 * * *</code> (daily 03:00 UTC)	Customer-tunable cron. Pick a window that overlaps your lowest-traffic time — updates roll the container with ~30 sec of unavailability.
<b>Notification email for updates</b>	(blank)	Optional. Receives a Watchtower-generated summary email when an update completes. Requires the EC2 to be able to send mail via Postfix/SMTP.
<b>Roll back failed updates automatically</b>	<code>true</code> (default)	Deploys a host-side monitor that tracks the digest of your last-known-healthy image. If a new image stays unhealthy (non-200 from <code>/health</code> ) for >5 minutes after an auto-update, the monitor rolls the container back to the previous image and enters a 1-hour cooldown to prevent loops. Logs in <code>journalctl -fu refine-rollback-monitor.service</code> . Set to <code>false</code> to opt out.

4. Click **Next** → review → check the IAM-acknowledgement box → **Create stack**.

5. Wait for `CREATE_COMPLETE` (~5–8 minutes).

## Stack Outputs — what to capture

After `CREATE_COMPLETE`, the **Outputs** tab shows everything you need. The two values that matter for the next step:

Output	What to do with it
<b>NextStep</b>	Read this top-line; it summarizes the BYOL flow.
<b>DeliveryBucketName</b>	Paste into the license-request form (Step 3).
<b>LicenseRequestUrl</b>	Open this in a new tab — that's where you go in Step 3.
<b>RefineUrl</b>	Your login URL (you'll use it in Step 5 after Refine boots).
<b>AdminConnectMethod</b>	How to SSH or open an SSM session if you need to log into the EC2 directly.

## Step 3 — Submit the license request

1. Open the `LicenseRequestUrl` from Outputs (<https://blacktip-ops.com/marketplace-license>).
2. Fill in the short form:
  - **AWS Marketplace customer ID** (from your subscription confirmation email)
  - **Contact email** (where the license + activation code arrive)
  - **DeliveryBucketName** (paste from the CFN Outputs above)
  - **Number of monitored accounts you plan to add** (1–5 / 6–20 / 21–50 / 51+)
  - **Primary cloud focus** (AWS only / AWS+Azure / AWS+Azure+GCP)
3. Submit.

Blacktip Solutions is notified automatically by AWS Marketplace when you subscribe, so even if the form takes a minute to reach a human, the subscription event has already arrived.

## Step 4 — Receive your license file and upload it

While you were filling out the form in Step 3, your EC2 already finished pulling the Refine container from AWS Public ECR. It's running, waiting for the license to land.

Within **1 business hour** (typically much faster during US business hours), you'll receive an email from Blacktip Solutions ([AMelcher@blacktip-ops.com](mailto:AMelcher@blacktip-ops.com)) with:

- An attached `refine.license` file (~500 bytes, Ed25519-signed, bound to your CFN stack's installation ID and the cloud accounts you listed).
- A one-line `aws s3 cp` command, ready to paste.
- Your **activation code** (`RF-XXXX-XXXX-XXXX-XXXX`) — needed once at first login.
- Links to the User Guide, the Pilot Rollout Guide, and the support address.

Save the attached file and run the command from any shell that's authenticated to your AWS account. It looks like this:

```
aws s3 cp refine.license s3://<your-DeliveryBucketName>/refine.license
```

That's the only file Blacktip ever sends you (everything else — the image, the day-2 scripts, the config — was already in place when the stack finished provisioning), and it's the only piece of the flow where you take action. Takes ~5 seconds.

**Why you upload instead of Blacktip.** *Cross-partition AWS IAM doesn't exist — a commercial Blacktip principal cannot write to a GovCloud bucket, and granting Blacktip cross-account write to commercial buckets would require broadening your CFN's bucket policy. Email + customer-upload works identically on Commercial and GovCloud, and keeps least-privilege on your delivery bucket.*

A license-watcher daemon on the EC2 polls the bucket every 60 seconds for `refine.license`. The instant it appears:

1. The watcher downloads the file with `aws s3 cp`.
2. Atomic-swaps it into `/opt/refine/refine.license` (mounted into the container at `/app/refine.license`).
3. Restarts the container with `docker compose restart`.
4. Refine validates the license offline against an Ed25519 public key baked into the image, and the UI comes up within ~30 seconds.

You can monitor the watcher in real time from the AWS console: **Systems Manager** → **Session Manager** → **Connect** → `journalctl -fu refine-license-watcher.service`.

## Step 5 — First login & cloud-account onboarding

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1. Open the `RefineUrl` from Outputs (HTTP or HTTPS depending on your stack config).
2. You'll see the Refine first-login screen. Paste the activation code from your email.
3. Create your admin account (email + password).
4. Add your first cloud account from **Cloud Accounts** in the sidebar:
  - **AWS:** one-click CloudFormation per account (creates the per-account data-collection Lambda + S3 bucket).
  - **Azure:** one-line `curl | bash` in Azure Cloud Shell (creates Entra ID app + Reader role + Storage + Cost Management Export).
  - **GCP:** Terraform module (creates Service Account + Viewer role + BigQuery billing export).
5. Wait for the first nightly sync (typically next morning) — or click **Sync now** to backfill immediately.
6. First recommendations appear within minutes of the first sync.

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## Cancellation & cleanup

To stop using Refine and remove all AWS resources from your account:

1. **Unsubscribe** in AWS Marketplace (or let the subscription expire). Subscription cancellation does not stop the CFN stack.
2. **Delete the CloudFormation stack** in the AWS console (the same stack you launched in Step 2). This removes the EC2, IAM role, security groups, ALB (if created), and the S3 delivery bucket.
3. **Remove the per-account onboarding stacks** in each AWS account you added to Refine (created in Step 5 #4) — same flow, delete from CloudFormation.
4. **Azure / GCP cleanup** (if you connected those): delete the Entra ID app / Service Account; remove the Cost Management Export / BigQuery export.

All inventory data lives in your own cloud accounts the whole time — there is no Blacktip-side data to delete because there was none to begin with.

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## Troubleshooting

Symptom	Likely cause	Fix
Stack stuck in <code>CREATE_IN_PROGRESS</code> >15 min	UserData step is installing Docker or pulling the Refine image from public ECR	Open SSM session, <code>tail -f /var/log/cloud-init-output.log</code>
<code>RefineUrl</code> returns 502 / connection-refused	Refine container is up but waiting on the license file (normal pre-license state)	Run the <code>aws s3 cp</code> command from your Blacktip email; check <code>journalctl -fu refine-license-watcher.service</code> — the UI returns 200 within ~30s of the license landing
License never picks up after upload	Watcher service stopped or EC2 role can't read the bucket	<code>systemctl status refine-license-watcher.service</code> ; verify the EC2 instance role can <code>s3:GetObject</code> on the delivery bucket; confirm the uploaded object key is exactly <code>refine.license</code> at the bucket root
Upload command fails with <code>AccessDenied</code>	Your shell isn't authenticated to the AWS account that owns the bucket	Run <code>aws sts get-caller-identity</code> — confirm the Account field matches your host account. Re-run after <code>aws sso login</code> or setting <code>AWS_PROFILE</code>
Cannot reach Refine on the configured CIDR	Security group / NACL too restrictive	Verify your office IP is in <code>AllowedAppCidr</code> ; check the SG inbound rules
Login screen says "License expired"	Free trial ended or annual term ran out	Contact <a href="mailto:support@blacktip-ops.com">support@blacktip-ops.com</a> — you'll get a 7-day grace period to renew

For anything else, email [support@blacktip-ops.com](mailto:support@blacktip-ops.com) with your AWS Marketplace customer ID + stack name. Typical response within 1 business day.

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