Kraken Azure Quick Start Guide

Kraken 3.6 on Microsoft Azure

This quick start guide describes how to create and configure a virtual Kraken server on Microsoft Azure. For detailed configuration and operation information, please refer to the Kraken User's Guide.

For the default credentials, refer to the *Important Notice* (postcard shipped with appliances). You may download the *Important Notice* as well as the latest software and Release Notes through the Download Center on the Haivision Support Portal.



Guide Contents

- About Kraken
- Before You Start
- Creating a Virtual Kraken Server
- Setting Up Your Server
- Signing in to Your Server
- Licensing Your Server
- Modifying Network Security Rules
- Setting Up Transcoding and Encoding
- Stopping the Instance

About Microsoft Azure

Microsoft Azure is a cloud computing platform for building, deploying and managing applications and services through a network of hosted data centers. Microsoft Azure allows you to deploy and manage your Kraken instances in this global network. For more information, please visit: http://azure.microsoft.com

About Kraken

Haivision Kraken can encode or transcode real-time motion imagery streams to optimize video quality over constrained networks and datalinks. Kraken uses Microsoft's global network of cloud regions and the public internet to distribute high-quality and encrypted full-motion video to multiple destinations for use in defense and ISR applications. As a transcoder, Kraken ingests compressed video data in a broad range of common streaming formats and converts that video stream to the most efficient standards-based formats (H.264 or HEVC) with stream settings suitable for downstream networks or video distribution systems. Kraken is specifically built for the task of transcoding to disseminate information in a format required by downstream networks, exploitation systems, and viewers, with the lowest possible delay, while preserving metadata with frame-accurate synchronization. Kraken provides powerful metadata management tools to aggregate multiple sources as required to save bandwidth while preserving geospatial context.

The following features have been disabled or modified on the Kraken Azure Web interface:

- 1. Network settings are read-only.
- 2. Upgrade is disabled.
- 3. SAP is disabled.

4. **Note**

This disables the legacy REST API. To access the API documentation for the current REST API, append /apidoc to the end of the Kraken URL. See Accessing the REST API (in the Kraken User's Guide).

Cloud Example

One example of Kraken Cloud usage would be to combine local Makitos with Azure Kraken and HMP as follows:

Workflow is 10x low bitrate transcodes: Makito X4-R/Makito X1 \rightarrow HEVC/NTSC/SRT(128kbps) \rightarrow Satellite \rightarrow Kraken (Azure) \rightarrow 264/720p/UDP(1Mbps) \rightarrow HMP (Azure)

Before You Start

You must have an active Microsoft Azure account to sign in to the Azure Portal. For evaluation purposes you can subscribe to Azure for a trial period. For more information, please visit: http://azure.microsoft.com/en-us/pricing/free-trial/

With Microsoft Azure, you must "bring your own license" (BYOL) for Kraken. You can choose from different licensing options. Please contact your Haivision representative to discuss your options. See Licensing Your Server for details.

Creating a Virtual Kraken Server

- 1. Sign in to your Azure account: https://portal.azure.com
- 2. After you have successfully signed in to the Azure portal, under Azure Services, click + Create a Resource.
- 3. Type "Haivision" in the search box and select "Haivision Kraken Transcoder".

	Aicrosoft Azure	⑦ 𝒫 Search	h resources, services, and docs (G+/)			0
Home >						
New					>	×
,⊂ Haiv	i			×		- 1
Haiv	vision Kraken Transco	oder				- 1
Hair	vision Media Gatewa	y				
Haiv	vision SRT Gateway					- 1
Recent	ly created		•			- 1
AI + M	achine Learning	Ø	Ubuntu Server 18.04 LTS			- 1
Analyti	cs	9	Learn more			
1. On the K	raken start pa	ige, click Cre	ate.			1
Home > Ne	< w					
Haivision Syste	on Kraken Trar	nscoder 🖈				×

Hai vision Kraken	Haivision Kraken Transcoder Save for later Haivision Systems Inc Create Start with a pre-set configuration Want to deploy programmatically? Get started
Microsoft's global r defense and ISR ap to the most efficien the inherent bandw specifically built for lowest possible del	an encode or transcode real-time motion imagery streams to optimize video quality over constrained networks and datalinks. Kraken uses network of cloud regions and the public internet to distribute high-quality and encrypted full-motion video to multiple destinations for use in vplications. As a transcoder, Kraken ingests compressed video data in a broad range of common streaming formats and converts that video stream nt standards-based formats (H.264 or HEVC) with stream settings suitable for downstream networks or video distribution systems. Kraken addresses vidth limitations of mission critical network links, while maintaining real-time low latency transmission of vital video and metadata. Kraken is r the task of transcoding to disseminate information in a format required by downstream networks, exploitation systems, and viewers, with the lay, while preserving metadata with frame-accurate synchronization. Powerful metadata management tools allow Kraken to aggregate multiple of to save valuable bandwidth while preserving geospatial context.

Useful Links Product Descriptoin Quick Start Guide

Setting Up Your Server

To set up your virtual server, complete each of the sub-sections as described below.

Basics

Home > New > Haivision Kraken Transcoder >					
Create a virtual machir	ne	×			
Create a virtual machine that runs Linux o	anagement Advanced Tags Review + create or Windows. Select an image from Azure marketplace or use your own customized iew + create to provision a virtual machine with default parameters or review each tab				
Project details					
	yed resources and costs. Use resource groups like folders to organize and manage all				
Subscription * 💿	Free Trial				
Resource group * 🛈	(New) Resource group				
Instance details					
Virtual machine name * 🕡					
Region * 🛈	US) East US				
Availability options 🕕	No infrastructure redundancy required				
Image * 💿	Haivision Kraken 3.3.0 - Gen1 V Browse all public and private images				
Azure Spot instance 💿	Ves No				
Review + create < Pre	vious Next : Disks >				

- 1. In the Basics section, specify a subscription plan.
- 2. For Resource Group, select an existing resource group. Click **Create New** to create a resource group, if necessary. For more information on resources, visit: https://docs.microsoft.com/en-us/azure/azure-resource-manager/resource-group-portal

\rm A Note

The resource group must be composed of the characters A-Z, a-z, 0-9, period(.), hyphen (-), and/or underscore (_).

- 3. Select a region, corresponding to the geographical location closest to the ingest source and/or egress source of your virtual server. This ensures the lowest latency for your Kraken traffic.
- 4. Enter a name for your virtual machine instance.

🔒 Note

The name must be composed of the characters a-z and/or 0-9.

5. For Size, select from the recommended pricing tiers (D2, D3, A2 Standard, etc.). For details see: http://azure.microsoft.com/en-us/pricing/details/virtual-machines/

Dashboard > Haivision Kraken Tran	scoder >
Create a virtual mac	hine
IIISTITUS RECITIS	Your recently used sizes
Virtual machine name * 💿	Standard_D2 - 2 vcpus, 7 Gi8 memory (CA\$136.51/month)
Region * 🛈	Standard_NC6_Promo - 6 vcpus, 56 GiB memory (CA\$370.11/month)
Availability options ()	Standard_D2s_v3 - 2 vcpus, 8 Gi8 memory (CA\$89.06/month)
	Recommended by image publisher
Image * 💿	Basic_A0 - 1 vcpu, 0.75 GiB memory (CA\$15.91/month)
to a fact to the fact of	Basic_A1 - 1 vcpu, 1.75 Gi8 memory (CA\$20.37/month)
Azure Spot instance 💿	Basic_A2 - 2 vcpus, 3.5 Gi8 memory (CA\$75.48/month)
Size * 🕕	Standard_D2 - 2 vcpus, 7 GrB memory (CA\$136.51/month)
	Select size
Administrator account	
Authentication type ③	SSH public key O Password
	Azure now automatically generates an SSH key pair for you and allows you to store if for future use. It is a fast, simple, and secure way to connect to
Review + create <	Previous Next : Disks >

🔒 Note

Size should be based on the considerations of performance, space and pricing. For recommendations on sizing, see https://azuremarketplace.microsoft.com/en-us/marketplace/apps/haivisionsystemsinc1580780591922.haivision-kraken?tab=PlansAndPrice.

- 6. Set up the Admin account by choosing "SSH public key" for the Authentication type and entering "hvroot" for the Username.
- 7. Generate an SSH public/private key pair for admin access to your virtual server. Typically, this is done on the computer that you will use to manage the server.

🔥 Note

SSH access to Kraken's Console UI is only allowed via SSH public key. After deploying the virtual server, you can use this console to enable access for other administrators by uploading their public keys.

You can generate an OpenSSH public key with tools like ssh-keygen on Linux and OS X, or PowerShell on Windows. For details, see https://docs.microsoft.com/en-us/azure/virtual-machines/linux/ssh-from-windows and https://docs.microsoft.com/en-us/azure/virtual-machines/linux/mac-create-ssh-keys.

- 8. Copy and paste your public SSH key into the "SSH public key" text box. Never share the private key.
- 9. For basic inbound ports, select ssh, http and httpd.
- 10. When you are satisfied with your settings, click **Next: Disks**.

Disk Options

- 1. Select the OS disk type. Disk size for Kraken Azure should be based on the considerations of performance, space and pricing.
- 2. When you are satisfied with your settings, click Next: Networking.

Networking

- 1. For the Public IP address, click **Create New** and select the desired options.
- 2. Enter a Domain Name Label prefix. If specified, a DNS record is created for the public IP, using this prefix plus the cluster location's FQDN.
- 3. When you are satisfied with the settings, click **Next: Review + Create**.

Review + Create

- 1. Review your settings. You can go back to previous sections to make any necessary changes or corrections.
- 2. When you are satisfied with the summary, click Create.

Creating your server instance can take several minutes. Once the VM creation is done, it can be found on the VM Machines page.

Dashboard > Virtual machines Haivision Systems Inc + Add ∨ S Reservations		ish Ø Assign	tags 🗅 Start 🤇 Restart 🗌 Stop 🗃 Delete	III Services		×
Subscriptions: All 2 selected - Don't se	riptions V All re	source groups 🗸	All types V All locations V	All tags	V No grouping	~
Name ↑↓	Type ↑↓	Status	Resource group ↑↓ Location ↑↓	Source	Maintenance status	Subscriptic
Kraken3.3.0-304-tzaan-Sanit-	 Virtual machine 	Running	TEAMCITY-KRAKEN-P North Central US	Image		AppSW De
🔲 📮 pkrvmbzkl31826z	Virtual machine	Failed	TeamCity-Kraken-Packer North Central US	Marketplace		AppSW De
🔲 🖳 pm-kraken	Virtual machine	Eunning	TEAMCITY-KRAKEN-P North Central US	Image		AppSW De

See Signing in to Your Server.

Signing in to Your Server

Accessing the Web Interface

1. On the VM Machines page, click the link for the Kraken Azure instance to view the details for the VM.

s 📰 Edit colu							
	shanns U Ketresh	⊘ Assign tags >	Start 🤇 Restart 🗌	Stop 🔟 Delete 🗐	Services		
ion't see a subsci	scription? Open Directo	ory + Subscription settings	s				
l subscriptions	s V All resourc	e groups 🗸 🛛 All type	es 🗸 All k	xations V A	II tags 🛛 🗸	No grouping	~
Туре	xe1ti 5	Status	Resource group ↑↓	Location ↑↓	Source	Maintenance status	Subscript
-Sanit Virtual	wal machine B	Running	TEAMCITY-KRAKEN-P-	North Central US	Image	-	AppSW E
Virtua	tual machine	Failed	TeamCity-Kraken-Packer	North Central US	Marketplace	-	AppSW (
Virtua	tual machine	Running	TEAMCITY-KRAKEN-P	North Central US	Image		AppSW (
Virtual	tual machine	Failed	TeamCity-Kraken-Packer	North Central US	Marketplace	- 	

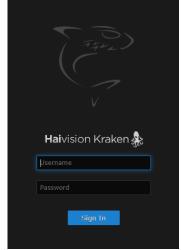
🕑 Tip

The Kraken Web Interface can be accessed with Kraken Azure VM's Public IP address.

2. Click the Public IP address the link to open the Web Interface.

Home > Virtual machines > Kraken-demo Virtual machine				×
	💋 Connect 🕞 Start	🦿 Restart 🔲 Stop 🛞 Capture 🔋 Delete 🖒 R	efresh	
Overview	Resource group (change)	: TeamCity-Kraken-Packer	Azure Spot	: N/A
 Activity log 	Status	: Running	Public IP address	: 65.52.220.183
Access control (IAM)	Location	: North Central US	Private IP address	: 10.0.0.10
🗳 Tags	Subscription (change)	: AppSW DevOps	Public IP address (IPv6)	1.5
Diagnose and solve problems	Subscription ID	: 2a6e9495-6f21-4eed-9fcb-3f69af7476d0	Private IP address (IPv6)	: -
2 Usignose and some proof ins	Computer name	: Kraken-demo	Virtual network/subnet	: pkrvn3gry0sqzjb/pkrsn3gry0sqzjb
Settings	Operating system	: Linux (centos 7.8.2003)	DNS name	: Configure
A Networking	Size	: Standard D2s v3 (2 vcpus, 8 Gi8 memory)		
💋 Connect	Tags (change)	: Click here to add tags		
🛢 Disks		\$		
📮 Size				
Security	Show data for last:	1 hour 6 hours 12 hours 1 day	7 days 30 days	
Advisor recommendations				
Detensions	CPU (average)	Network (total)		\$

3. Sign in to the Kraken Web interface, using the default administrative user name and password.



 Please refer to the *Important Notice* (postcard included in the box or available from the Download Center on the Haivision Support Portal) for the default login credentials. A License Required modal appears. See Licensing Your Server to obtain a license.

Accessing the Console UI

You can log in to virtual server's Console UI via a Secure Shell (SSH) client (e.g., Terminal on macOS, or PuTTY on Windows).

🚹 Note

You must have a private RSA key corresponding to the public key with which the virtual server was configured. See the "Basics" heading in Setting Up Your Server.

1. In a terminal window, enter the following command:

ssh -i ~/.ssh/<private-key_rsa> hvroot@<public-ip-address>

The Console UI appears. Note that the Root user is disabled; however, Root commands can be run with sudo.

- 2. In the navigation sidebar, use the ↑↓ (up and down arrow) keys to highlight menu items, and then press the **Enter** key.
- 3. Change settings as necessary.

🔥 Important

Network configuration settings are controlled by Microsoft Azure. Do not change them using the Haivision Console UI.

- 4. Press the **Enter** key to save your changes and return to the main screen.
- 5. Select Log Out and then press the Enter key to exit the Console UI.

For more details, refer to Using the Console UI with Haivision Hardware.

Licensing Your Server

Before beginning to transcode or encode video, you must obtain a license from Haivision by providing your server's Resource ID.

🔥 Note

Without a valid license key, you can sign in, but you cannot encode or transcode video.

Generally, Kraken uses the Azure resourceld instead of MAC address for licensing. The Kraken license service on Kraken VMs periodically retrieves the VM information (including the resourceld) from the Azure metadata service for license validation.

You can find the Kraken Azure resourceld on the Properties page of the Kraken VM and can copy it to the clipboard by clicking the button at the rightmost edge of the Resource ID text field.

Home > Virtual machines	
» Kraken-o	lemo Properties
Search (Ctrl+/) Search (Ctrl+/) Profiguration Gonfiguration Identity Properties Cocks Export template	Azure Spot eviction type N/A Host ID None Proximity placement group
Operations	
Station Image: Construction Image: Construction Image: Construction Image: Construction Image: Construction	Availability zone None
Policies	TeamCity-Kraken-Packer
Run command	*

To obtain a license for the Kraken Azure server:

- 1. Sign in to the Web interface using one of the credentials provided in the Important Notice.
- 2. Click the Administration icon on the toolbar (the settings gear) and click Licensing from the sidebar.

Haivision Kraken 🎄		Welcome haiadmin (Sign out) 🛛 😣 📀
Licensing		Save Settings
Accounts Certificates Events Licensing Network Presets Status	Haivision Kraken License expires on 07/00 Product MAC Address Cloud License Resource ID License Features	9/2020, 20:00 Kraken 3.3.0 00:0D:3A:62:DF:3A Azure_BYOL /subscriptions/2a6e9495-6f21-4eed-9fcb-3f69af7476d0/resourceGroups/TeamCity- Kraken-Packer/providers/Microsoft.Compute/virtualMachines/Izaan3.3.291
	License Features	3.3
	Hardware Accelerated (QSV) H.264 encoder	Enabled
	Hardware Accelerated (QSV) HEVC encoder	Enabled
	MPEG-2 video encoder	Enabled
	HEVC video encoder ST2110 Input	Enabled
	KLV option	Enabled
	Streams allowed	20
	Active stream load Load calculated based on	0% 1x HD H.264 = 1x SD H.264 1x HD HEVC = 1x HD H.264 = 1x SD HEVC 1x HD MPEG-2 = 1x HD H.264
	Bypass mode streams allowed	20

The Licensing page provides three pieces of information required to generate the Azure license:

- MAC Address
- Cloud License
- Resource ID
- 3. Click the 🗎 icon to copy the current product details to the clipboard for use in the following step.
- 4. To request a license for your product:
 - a. Log in to the Haivision Support Portal (https://support.haivision.com).
 - b. After logging in, click License Requests.
 - c. Click the **New** button.
 - d. Select the appropriate device type and click the **Next** button.
 - e. Fill in the form with the appropriate information, and click Save.

Your license request is submitted and you will be contacted by a Haivision representative shortly with a license key for your product.

- 5. After you receive a license key, paste the license string in the License text box.
- 6. Click Save Settings to load the license.

The License Features list is updated to show the new license information.

Modifying Network Security Rules

By default, most Inbound and Outbound network traffic ports are denied. To allow Kraken input and output streams to get in and out the VM machine, you need to add inbound/outbound rules to open some ports for certain protocols. For example, SRT needs some ports opened for UDP. Also, customized rules should be higher priority than default deny-rules. Example setups are shown following (ports can be narrowed down to a range too).

The required ports are 22 (SSH), 80 (HTTP), and 443 (HTTPS).

Kraken-demo Ne	tworking						
,O Search (Ctrl+/) «	: Ø Attach netwo	rk interface ϕ^{Q} Detach network interface					
 Access control (IAM) Tags 		rface: kraken-demo507 Effective ser ibnet: pkrvn3gry0sqzjb/pkrsn3gry0sqzjb	NIC Public IP: 6	opology ⊙ 5.52.220.183 NIC Priv	ate IP: 10.0.0.10 Accele	erated networking: Dis	abled
Diagnose and solve problems	Inbound port n	ules Outbound port rules Applicat	ion security grou	ps Load balancing			
Settings		ity group kk233Cent78-nsg (attached to s	ubnet: pkrsn3gŋ	Osqzjb)		Add inbo	und port ru
🚨 Networking							
🖉 Connect	Priority	Name	Port	Protocol	Source	Destination	Action
Disks	100	🔺 SRT_in	Any	UDP	Any	Any	O AB
📮 Size	200	TCP_7100	7100	TCP	Any	Any	O Alk
Security	300	SSH	22	TCP	Any	Any	O Alk
 Advisor recommendations 	320	HTTP	80	TCP	Any	Any	• Alk
	340	HTTPS	443	TCP	Any	Any	o Alk
E Extensions	350	🔺 ping	Any	ICMP	Any	Any	o Alk
Continuous delivery	65000	AllowVnetInBound	Any	Any	VirtualNetwork	VirtualNetwork	o Alk
Availability + scaling	65001	AllowAzureLoadBalancerInBound	Any	Any	AzureLoadBalancer	Any	O Alk
Configuration	65500	DenyAllinBound	Any	Any	Any	Any	O De
1 Identity	<	e cogo e concesta con	,				

lome > Virtual machines >							
Kraken-demo Ne	tworking						
Search (Ctrl+/) «	Attach network IP configuration ①	interface ϕ^{e} Detach network inte	rface				
Access control (IAM)	ipconfigt (Primary)						
Diagnose and solve problems		ce: kraken-demo507 Effectiv et pkrvn3gry0sqzjb/pkrsn3gry0sqz	· · · · · ·	opology ⊙ 5.52.220.183 NIC Pri	vate IP: 10.0.0.10 Acce	lerated networking: Dis	abled
Settings							
A Networking	Inbound port rules	Outbound port rules App	plication security grou	ps Load balancing			
🖉 Connect		group kk233Cent78-nsg (attacher , 0 network interfaces	d to subnet: pkrsn3grj	(Osqzjb)		Add outbo	und port rule
Disks	Priority	Name	Port	Protocol	Source	Destination	Action
📮 Size	100	SRT_out	Any	UDP	Any	Any	Allow
Security	65000	AllowVnetOutBound	Any	Any	VirtualNetwork	VirtualNetwork	 Allow
Advisor recommendations	65001	AllowInternetOutBound	Any	Any	Any	Internet	 Allow
Extensions	65500	DenyAllOutBound	Any	Any	Any	Any	O Deny
🚳 Continuous delivery		-			-	-	

) Note

For more information on SRT, please refer to the Kraken User's Guide and the SRT Deployment Guide.

Setting Up Transcoding and Encoding

To set up transcoding, you need to define:

- Inputs the source URL, or an SDI or Analog Composite Input (applicable hardware server or appliance, cloud or virtual machine instance) for baseband input encoding
- Transcoders audio and video characteristics to change
- Outputs one or more output URLs
- Streams select from defined Inputs, Outputs, Transcoders, and (optionally) Metadata sources.

You may optionally configure Kraken to capture KLV or CoT **Metadata** from a UDP network source or from the SDI or Serial Input interface.

For detailed configuration and operation information, please refer to the Kraken User's Guide.

🕑 Tip

A typical Kraken Azure use case is SRT configuration.

Stopping the Instance

Important

Please be aware that simply shutting down your server via the Console UI does not deallocate your instance, and you will continue to be charged for the running instance. To avoid unwanted charges, you must stop the virtual machine.

To stop your server instance:

- 1. Navigate to the VM Machines page in the Azure portal.
- 2. Click the link for the Kraken Azure instance to open the detail view and click Stop.

Home > Virtual machines >				
Kraken-demo				>
, P Search (Ctrl+,/) ≪	💋 Connect 🕞 Start	代 Restart 🔲 Stop 🞉 Capture 🔋 Delete 🖒 F	tefresh	
Overview	Resource group (change)	: TeamCity-Kraken-Packer	Azure Spot	: N/A
Activity log	Status	: Running	Public IP address	: 65.52.220.183
Access control (IAM)	Location	: North Central US	Private IP address	: 10.0.0.10
Tags	Subscription (change)	: AppSW DevOps	Public IP address (IPv6)	14
Diagnose and solve problems	Subscription ID	: 2a6e9495-6f21-4eed-9fcb-3f69af7476d0	Private IP address (IPv6)	1.5 -
Output and some protocold	Computer name	: Kraken- demo	Virtual network/subnet	: pkrvn3gry0sqzjb/pkrsn3gry0sqzjb
Settings	Operating system	: Linux (centos 7.8.2003)	DNS name	: Configure
A Networking	Size	: Standard D2s v3 (2 vcpus, 8 Gi8 memory)		
Ø Connect	Tags (change)	: Click here to add tags		
Bisks		Ŕ		
📮 Size				
Security	Show data for last:	1 hour 6 hours 12 hours 1 day	7 days 30 days	
Advisor recommendations	Law			
E Extensions	CPU (average)	Network (total)		A
6 a c				

Obtaining Documentation

This document was generated from the Haivision InfoCenter. To ensure you are reading the most up-todate version of this content, access the documentation online at https://doc.haivision.com. You may generate a PDF at any time of the current content. See the footer of the page for the date it was generated.

Getting Help

General Support	North America (Toll-Free) 1 (877) 224-5445
	International 1 (514) 334-5445
	and choose from the following: Sales - 1, Cloud Services - 3, Support - 4
Managed Services	U.S. and International 1 (512) 220-3463
Fax	1 (514) 334-0088
Support Portal	https://support.haivision.com
Product Information	info@haivision.com