



## CHIME FOR TEAMS HIGH AVAILABILITY GUIDE

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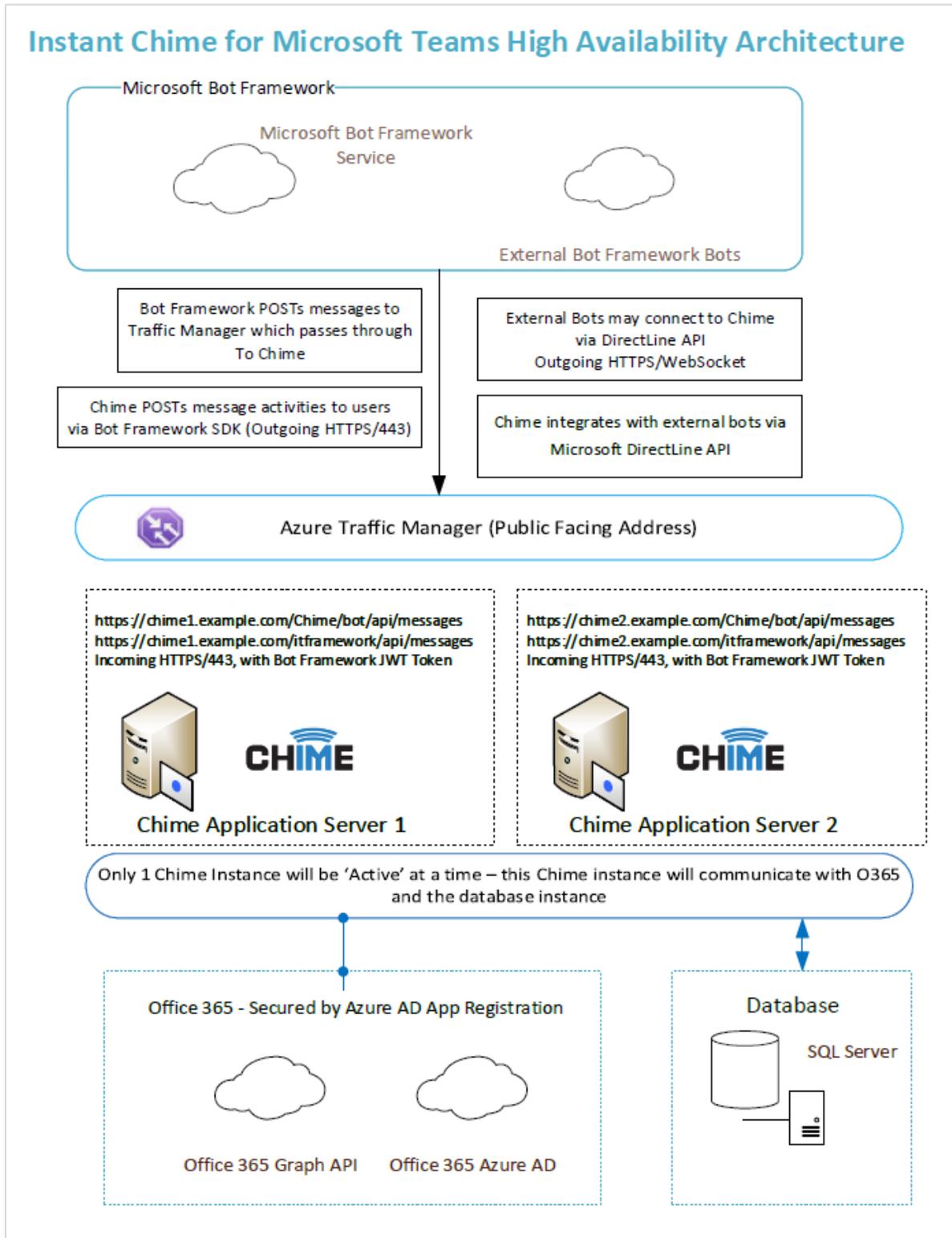
# CHIME FOR TEAMS HIGH AVAILABILITY GUIDE

## OVERVIEW

To use Chime in a high availability state, we will want to use a Traffic Manager to determine which Chime server should be used - and if one goes down, where to send traffic. Below is a list of the steps that this guide will cover on how to structure a high availability setup with Chime:

1. Setup two (or more) servers with Chime prerequisites in the same domain
2. Create multiple different app registrations for each Chime instance
3. Create a database for Chime
4. Install Chime on the servers using the High Availability setting
5. Create unique public IP addresses for the multiple servers
6. Get an SSL cert for the Chime instances, use on all VMs (must be in the same domain)
7. Deploy Azure Traffic Manager
  - a. Add in the Chime servers as endpoints
  - b. Configure the Traffic Manager to route between the servers using the Chime health check API path
8. Create DNS alias for the Traffic Manager (optional)
9. Update the settings for the Chime instances in the config wizard
  - a. Make sure the custom DNS is the same
  - b. Server address for the SSL is the same

# CHIME FOR TEAMS HIGH AVAILABILITY ARCHITECTURE



## PREPARATION BEFORE CREATING TRAFFIC MANAGER

### CREATE CHIME SERVERS

For integrating with Traffic Manager, we recommend creating virtual machines hosted through Microsoft Azure, although using physical machines will work as well. Deploy a server with specs equivalent or better than a Standard D1 v2 (1 vcpu, 3.5 GiB memory) for the Virtual Machine. We recommend naming the servers something similar when creating them (ex: chimeHA1, chimeHA2, chimeHA3).

For more information on the Chime server setup refer to the [Chime Machine and System Requirements](#) documentation we have on our [Install and Getting Started](#) page.

### PREREQUISITES

When setting up the multiple Chime servers to be used for high availability, you must create multiple app registrations in your Azure Active Directory and approve the api permissions for the multiple app registrations. We would recommend naming the app registrations to match the naming scheme you used when creating the Chime servers.

For the specific steps used for creating an app registration, follow the steps on the [Chime Prerequisites](#) guide.

### SETUP A CHIME DATABASE

Before installing Chime, you will need to create an empty database on a db server that all of the Chime servers in this high availability setup can access. If you are setting up the Chime servers as Azure VMs, a Standard S1: 20 DTUs Database is recommended for the setup.

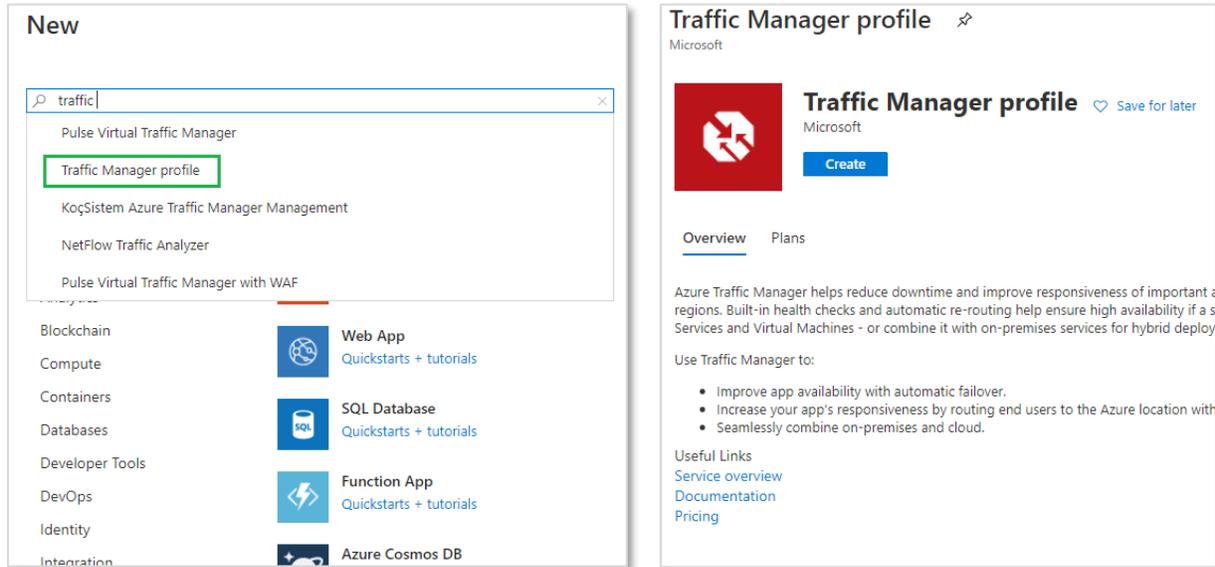
For more information on this, the [Chime Machine and System Requirements](#) [https://www.addchime.com/assets/resources/Teams/Chime\\_Teams\\_Machine\\_System\\_Requirements.pdf](https://www.addchime.com/assets/resources/Teams/Chime_Teams_Machine_System_Requirements.pdf) documentation describes the specs of the database

### INSTALL CHIME

Next, you will need to deploy Chime onto all of the servers that are set up for high availability. Follow the steps in the installation guide using the custom installation. When prompted, select that option to setup Chime using the HA option. Once you get to the configuration wizard after Chime is installed, you can move on to the next step. We will come back to this later after the Traffic Manager is deployed.

## DEPLOY TRAFFIC MANAGER

Navigate to the resource group used for your Chime deployment and add in a new resource. Search for “Traffic Manager profile” and then click Create.



Next, enter in the name of the traffic manager, set the Routing method to “Priority” and assign it to the subscription and resource group for this project.

The image shows the "Create Traffic Manager profile" form. It has the following fields and options:

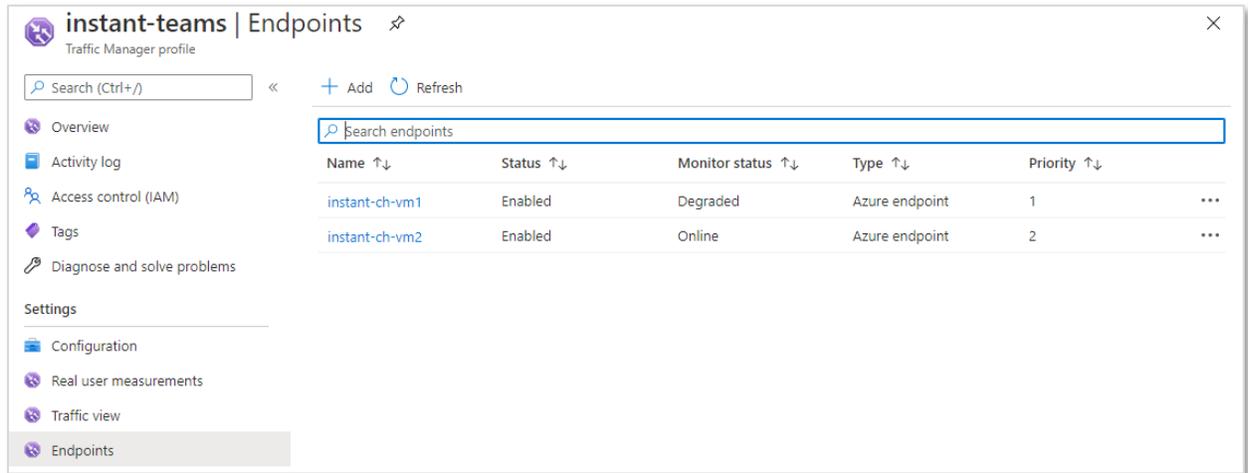
- Name \***: A text input field containing "test-manager" with a green checkmark icon. Below the field, ".trafficmanager.net" is displayed.
- Routing method**: A dropdown menu with "Priority" selected.
- Subscription \***: A dropdown menu with "Pay-As-You-Go" selected.
- Resource group \***: A dropdown menu with "test-manager" selected. Below the field is a link "Create new".
- Resource group location ⓘ**: A dropdown menu with "Central US" selected.

At the bottom of the form, there is a blue "Create" button and a link "Automation options".

The resource will be created. Once it is available, open it and navigate to the Endpoints tab.

## ADD IN THE CHIME SERVERS AS ENDPOINTS

Here is where you are able to add in the different Chime servers that you have set up for high availability. Click “Add” and then select “Azure endpoint” if all the servers are Azure VMs, or “External endpoint” if they are servers in your environment.



Enter in the “Name”, point to the location of the machine and set the “Priority” of the machine to be added (priority 1 being for the primary Chime instance). Repeat this until all of your high availability machines are added.

## HEALTH CHECK API PATH

Once you have added in the high availability machines, navigate to the Configuration tab.

- Set Protocol to “HTTPS”
- Port to “443”
- Path to “/Chime/API/Health/Status”

The screenshot shows the 'instant-teams | Configuration' page for a Traffic Manager profile. The left sidebar contains navigation options: Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Settings (with 'Configuration' selected), Real user measurements, Traffic view, Endpoints, Properties, Locks, Export template, Monitoring (Alerts, Metrics, Diagnostic settings, Logs), and Support + troubleshooting (Resource health). The main configuration area includes: Routing method (Priority), DNS time to live (TTL) (60 seconds), Endpoint monitor settings (Protocol: HTTPS), Port (443), Path (/Chime/API/Health/Status), Custom Header settings, Expected Status Code Ranges (default: 200), Fast endpoint failover settings (Probing interval: 30), Tolerated number of failures (1), and Probe timeout (10 seconds).

Once all of these settings are set, click “Save” to apply the settings.

## CREATE DNS ZONE

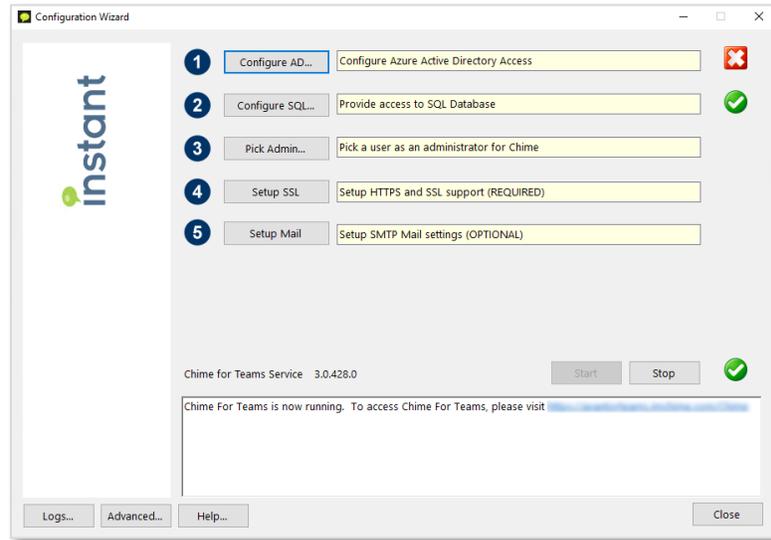
At this point you are done with setting up the Traffic Manager, however, the name of your traffic manager endpoint to access Chime will be something like `chime-teams.trafficmanager.net/Chime`

To make this url more similar to a typical Chime deployment, you will want to set up a DNS zone. In Azure, simply search for “DNS zones”, then navigate to the one for the domain in which the servers are on. Then click the add “Record Set” option. Name the record set, switch it from type A to CNAME, and set the Alias to the default url for the traffic manager.

## SETTINGS IN CONFIG WIZARD

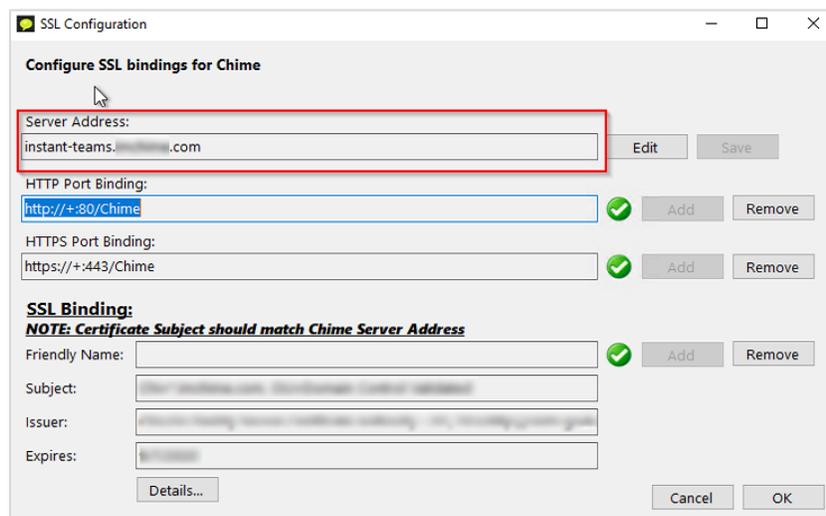
Once the Traffic Manager setup is finished, you will need to modify some of the settings on the Chime servers you set up earlier.

First, click the “Advanced” button on the bottom left of the config wizard.



If the “customdns” already exists, change it to either the DNS Alias you created earlier, or to the name of the endpoint for the Traffic Manager. If the setting is not in the list, click the ads setting button and from the dropdown pick the “customdns” option and add in the endpoint information. Repeat this step on all of the servers.

Next, you will need to click the Setup SSI button. You will now need to change the server Address field so that it matches the DNS Alias you created earlier, or to the name of the endpoint for the Traffic Manager.



## CREATING MATCHING HIGH AVAILABILITY SERVERS

When you create a high availability setup for Chime, most of the settings are able to carry over as they are saved in the database, however, this section of the guide will cover all of the settings that you might need to duplicate on all high availability servers so that you can fallback and maintain settings.

### HIGH LEVEL OVERVIEW

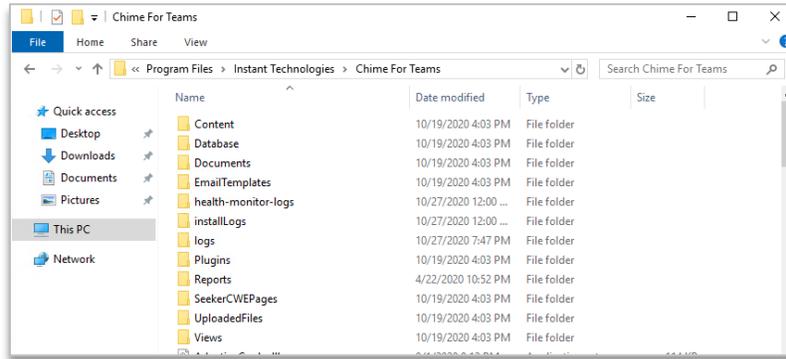
Each of the next sections will cover the specific details on the files you will need to move over, but this section will give a couple of steps to get files copied over quickly.

- Copy the **Settings.xml** file from Chime For Teams\settings.xml and add it to the same directory in each of the additional HA server(s).
- Copy the **Chime For Teams\Content** folder and add them into the **Content** directory of the additional HA server(s)
- Copy the **Chime For Teams\EmailTemplates** and add them to the **Email Templates** directory of the additional HA server(s)
- Copy all of the **Virtual Agents** from the **Chime For Teams\Plugins** folder and add them to the **Plugins** directory of the additional HA server(s)
  
- If you plan on adding in any images to any Adaptive Card Text Resources or Interviews, you will also need to host the images using a CDN or hosting service instead of referencing the images from the Chime server.
- If you would like to keep the images in Text resources and Interviews on the Chime servers you will need to add images to the images folder (or create a subfolder in there) and then reference them in adaptive cards with the Url: <https://@Model.ServerFQDN/Chime/Content/images/>... then add the filename.

## SETTINGS XML

Once your main server has been created and fully set up, you will want to copy over the settings.xml file to the other HA servers. Additionally, whenever you make changes in the Admin/Settings section it would be safe to copy over the settings file to the other servers.

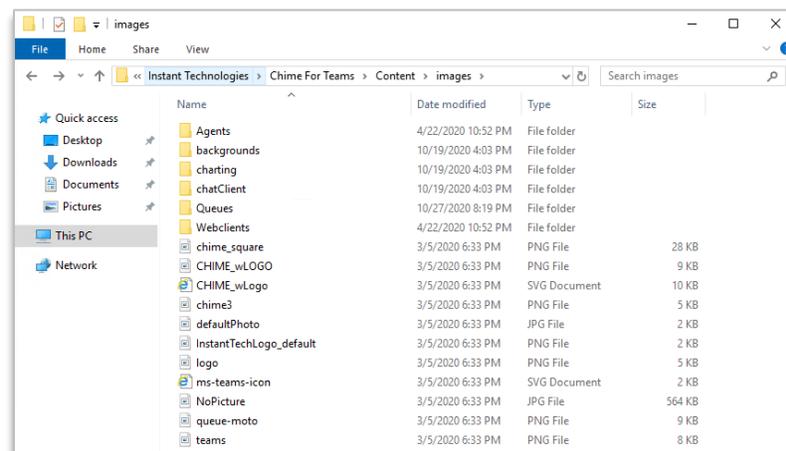
The settings.xml file can be found in Instant Technologies\Chime For Teams\settings.xml



## CUSTOM BRANDING

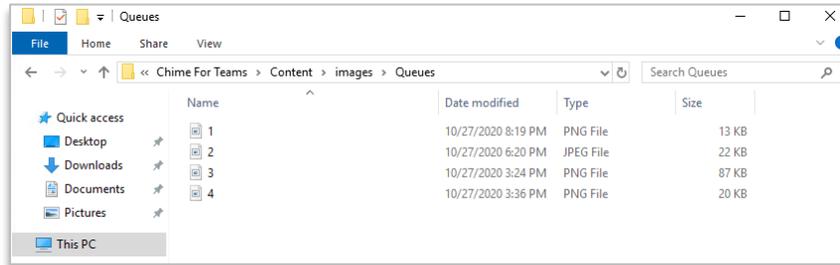
If you have added any custom branding you will want to make sure all of the images have been copied over to the high availability servers. This would include copying over logo images, and background images used.

These images can be found in Instant Technologies\Chime For Teams\Content\images\logo.png and all of the files in Instant Technologies\Chime For Teams\Content\images\backgrounds should be copied over as well.



## QUEUE IMAGES

All branding images for the queues need to be copied over as well, these images can be found in the Instant Technologies\Chime For Teams\Content\images\Queues\ directory



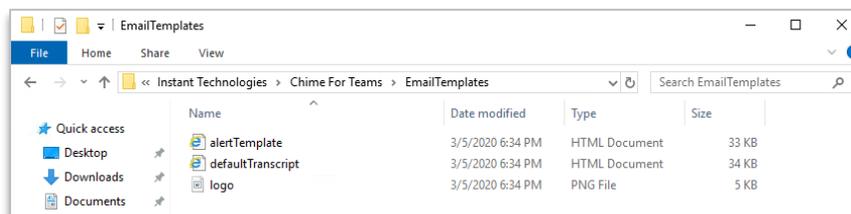
## CUSTOM WEB CLIENT IMAGES

If you have made any custom web clients for Chime, you will need to copy over any images used for that as well. The files are in the Instant Technologies\Chime For Teams \Content\images\Webclients\ directory

## EMAIL TEMPLATES

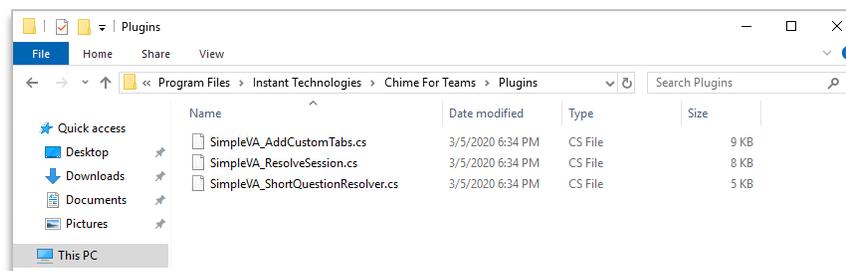
If there have been any changes to the email templates that get sent out at end of chat, you will need to copy those files over to the additional servers. The email template can be found in

Instant Technologies\Chime For Teams\EmailTemplates\



## VIRTUAL AGENTS

Any Virtual Agents that are in Chime must be copied over to the different high availability servers as well. These can be found in the Instant Technologies\Chime For Teams\Plugins folder



## COMMON QUESTIONS ABOUT CHIME HIGH AVAILABILITY

Does this High Availability setup use a load balancer?

- This setup of High Availability does not use a load balancer. The current setup does not split traffic between multiple servers, however it does direct the traffic from a main server to a secondary server in the event that the main server goes down.

How many SSL certificates are required for 2 chime servers with Unique Azure Traffic Manager (Public facing)? Or only single SSL certificate will host multiple server's entries?

- You should only need one ssl cert for the setup as both certs are going to point to the DNS entry that the traffic manager will proxy from. All incoming traffic will want to be directed at this traffic manager DNS entry and in the SSL configuration you will want to point the Server Address to this as well.

Do you need to create multiple different app registrations for each Chime instance? We want to use only single instance in HA or what is best practice for it.

- When creating a high availability instance of Chime, you can use 1 app registration, but having multiple may make transitioning between servers smoother. You will want to have one or more backup servers that can take the traffic if the main server goes down.

Do we need two SQL chime instances for two different chime servers? If yes so how both instances will get synced?

- Both of the Chime servers will point at the same database. If you want your database to be set up in high availability mode, we recommend setting up a database cluster if you want the db to be always online.

I don't understand why we need to copy/past files and folders post installation of Chime servers in HA manually or will it get synced automatically?

- In this setup, many of the settings will be carried over by referencing the same database, however, all of the items listed in this section are not stored in the database and will need to be manually copied over to the backup Chime server so that all of the Virtual Agents, branding and any images in text resources can be carried over to the backup server.

What are the steps to do failover/failback service from one server to another manually? Are there steps for SQL server's DB.

- If a failover on the main server should happen, the Azure Traffic Manager will direct incoming traffic to the secondary Chime server. This Server will be set up identically to the main server and customers and Agents will not notice a failover. The Chime admins will receive emails from the Chime Health Monitor if SMTP is set up and if the main Chime server is restarted, all traffic will return to that server.

If the active server crashes on OS/Hardware level, then what are the steps to move role from active to Passive? Because I see manual efforts in HA overview section of document.

- If the main server goes down and is non-recoverable, you will need to create and add a new HA Chime server to the Azure Traffic Manager. If you have any of your Chime HA servers set up as virtual machines initially, you would also be able to clone the VM and then duplicate it to maintain another level of high availability.

How we can do a HA testing?

- To start testing this, you would need to setup a new Chime server in HA in your lab environment and then you would want to have both the main and secondary servers added to the Azure Traffic Manager. Once that is all set up, you can begin to test the main server going down (losing network connection, unexpected power cut, going down for maintenance etc...).

How many service desk chat queues we will have to install in Teams client for HA?

- Setting up Chime in HA does not require you to add in any new chat queues. The secondary servers will pull from the same database and all queues and agents added to the original will.

How many bot channels we will have to deployed in HA?

- You will not need to add any additional bot channels to set up HA.