



SAFR[®] SMS Watchlist Solution Guide

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1 SMS Watchlist Solution Guide

This solution guide describes how set up a system that will monitor the entrances to your facility and will send you an SMS message when a known threat is detected.

This guide is written for Windows users. Linux users can achieve the same functionality, but they need to use the Web Console instead of the Desktop Client.

For simplicity's sake, this guide assumes that you're using a SAFR Cloud License. If you're using a SAFR On-Premise License, you'll also need to install and manage the SAFR Server.

1.1 Required Hardware and Software

1.1.1 Required Hardware

- At least one camera for every entrance you want to monitor. See the Camera Selection and Positioning section below for information about camera requirements.
- Approximately one PC for every 8 cameras that you use. See SAFR System Requirements for recommended specifications for the computers.
- An Android phone.

1.1.2 Required Software

- Install SAFR Desktop Client Universal Edition on each PC you're going to use.
- Install SAFR Mobile Client on your Android phone.

1.2 Install SAFR Desktop Client

Download and install the SAFR Desktop installer for Windows from the SAFR Download Portal. The SAFR Desktop installer includes both the SAFR Desktop Client and SAFR Actions, but there's no need to install SAFR Actions for this solution guide.

If you have many cameras, you may need to install multiple Desktop Clients on different machines. Typically each machine can handle up to 8 cameras.

On every Desktop Client that you install, do the following to configure it:

1. Select the **Secure Access** video processing mode from the drop-down menu in the upper right corner of the Camera Feed Analyzer window. (i.e. the default window)
2. Configure the client's preference settings by selecting **Preferences...** from the **Tools** drop-down menu.

Configure the following settings:

- **Detection Menu:**
 - **Enable person detector:** Enable.
- **Events Menu:**
 - **Include Speculated Identity Events:** Enable.
 - **Include Secondary Events:** Enable.
 - **Remove identities:** Click **Change**.
 - **Remove Anonymous Identities after:** Disable.
 - **Remove Identities of person type after:** Disable.

1.3 Install SAFR Mobile Client

Download and install the SAFR Mobile installer for Android from the SAFR Download Portal onto your Android phone. This will allow you to examine events sent to you by the SMS Watchlist Alarms Dashboard.

1.4 Camera Selection and Positioning

Because the goal of this solution guide is to detect when a known threat attempts to enter the facility, every entrance to the facility should have at least one camera pointed at it. Camera placement should follow these guidelines:

- In most cases, cameras should be about 10-12 feet off the ground and about 20-30 feet from the entrance.
- Subjects should be facing nearly straight on.
- Camera resolution and angle of view should be such that faces are at least 80 pixels wide when at the entrance. (Larger than 80 pixels would be even better.)

1.4.1 Lighting Considerations

Success with recognition largely depends on lighting conditions.

- At nighttime and indoors there should be a light source behind the camera so that subjects' faces are clearly illuminated.
- Avoid a direct line between the sun and your cameras' lenses.

Backlighting, which is when light shines from behind a subject, can cause significant difficulties in recognition and should be avoided whenever possible. However, because backlighting often can't be avoided, the cameras you use should have advanced backlight control. This is often called HDR (high dynamic range) or WDR (wide dynamic range).

HDR/WDR works by dynamically adjusting the lighting in differently across the image. This results in an image in which the dark regions receive higher exposure and thus the entire picture is more evenly lit.

Even when using cameras with advanced backlight control, direct background daylight can still be a challenge. In addition to using cameras with built-in backlight control, there are other steps you can take to improve face recognition in situations with strong backlight:

1. Position your camera further back from the door if possible.
2. Angle the camera slightly toward the floor to eliminate as much direct light into the camera's sensor as possible.
3. Because people will be moving through the field of view (FOV), maintaining high shutter speed is important to obtain blur-free images. To help accomplish this, place a bound on the slowest shutter speed allowed.
4. Turn on backlight compensation if available.
5. If faces are still dark, adjust the exposure compensation to brighten the faces. The background will probably become overexposed, but that's OK for facial recognition.

1.4.2 Install and Connect your Cameras

For each camera you install, do the following:

1. Within the SAFR Desktop Client's Camera Feed Analyzer window (i.e. the client's default window), select the camera you want to install.
2. Select the **Secure Access** video processing mode from the drop-down menu in the upper right corner of the Camera Feed Analyzer window.
3. Optimize the camera location and orientation. Adjust the camera's optical zoom to ensure that subjects' faces are at least 80 pixels high from chin to forehead.
4. Adjust the focus of the camera to the closest position where all subjects' faces are within the camera's field of view. (i.e. ensure that no one will be to the left or right of the camera view)
5. Add the camera's video feed to your Video Recognition Gateway (VIRGO) video feeds by pressing the **Add to Video Feeds** button.
6. Check your system's CPU and GPU load. If you need to install an additional camera, but doing so would increase your CPU or GPU load to 100% or greater, install an additional instance of the SAFR Desktop Client on a different machine and install the additional camera on the newly installed Desktop Client.

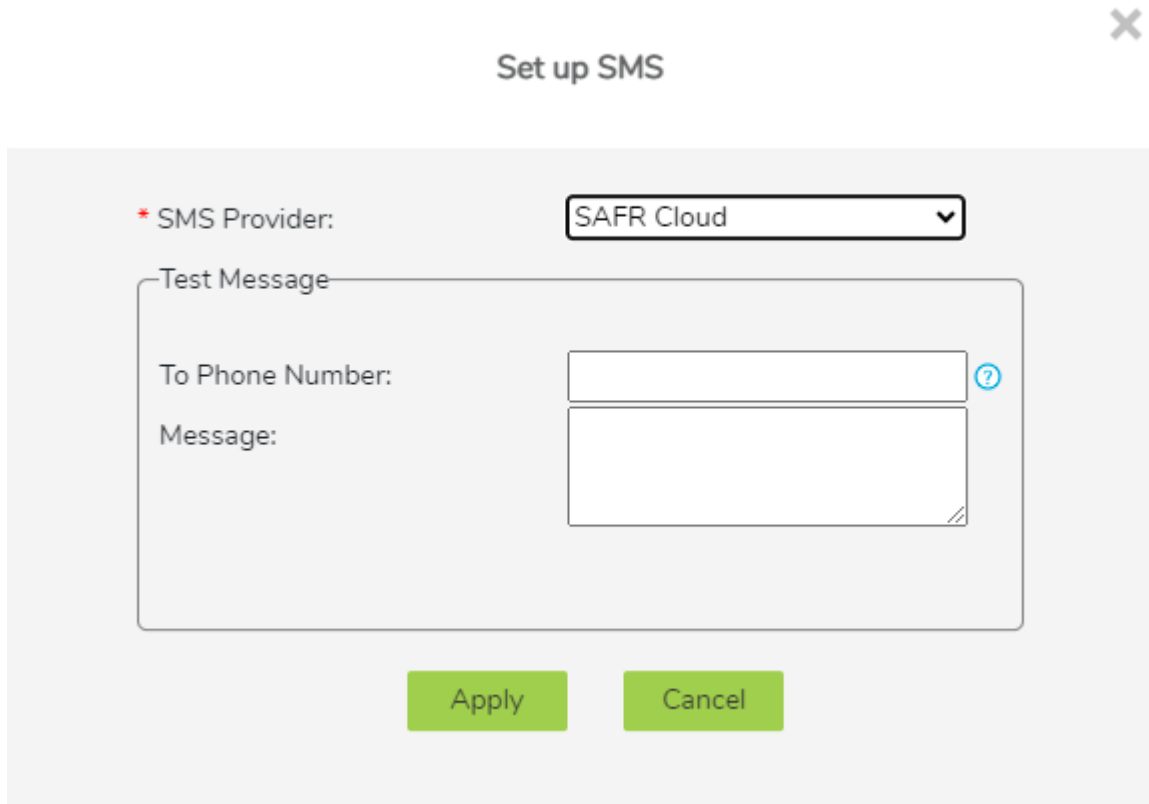
1.4.3 Additional Camera Resources

- Anyone setting up cameras for facial recognition should be fully familiar with digital photography concepts described in the video Aperture, Shutter Speed, ISO, & Light Explained-Understanding Exposure & Camera Settings. (The video is 15 minutes long.)
- Specifics on backlight compensation can be found here: <https://www.dpmag.com/how-to/tip-of-the-week/combat-backlighting-with-exposure-compensation/>

1.5 Configure SAFR to Send SMS Messages

Configure SAFR so that it can use a short message service (SMS) server to send SMS messages.

1. Go to the Web Console's Status Page.
2. In the *Configuration* section, click on **Set up SMS**. You'll be presented with the following dialog.



The screenshot shows a dialog box titled "Set up SMS" with a close button (X) in the top right corner. The dialog contains the following elements:

- A label "* SMS Provider:" followed by a dropdown menu showing "SAFR Cloud".
- A section titled "Test Message" containing:
 - A label "To Phone Number:" followed by a text input field and a blue question mark icon.
 - A label "Message:" followed by a larger text area with a diagonal slash icon in the bottom right corner.
- Two green buttons at the bottom: "Apply" and "Cancel".

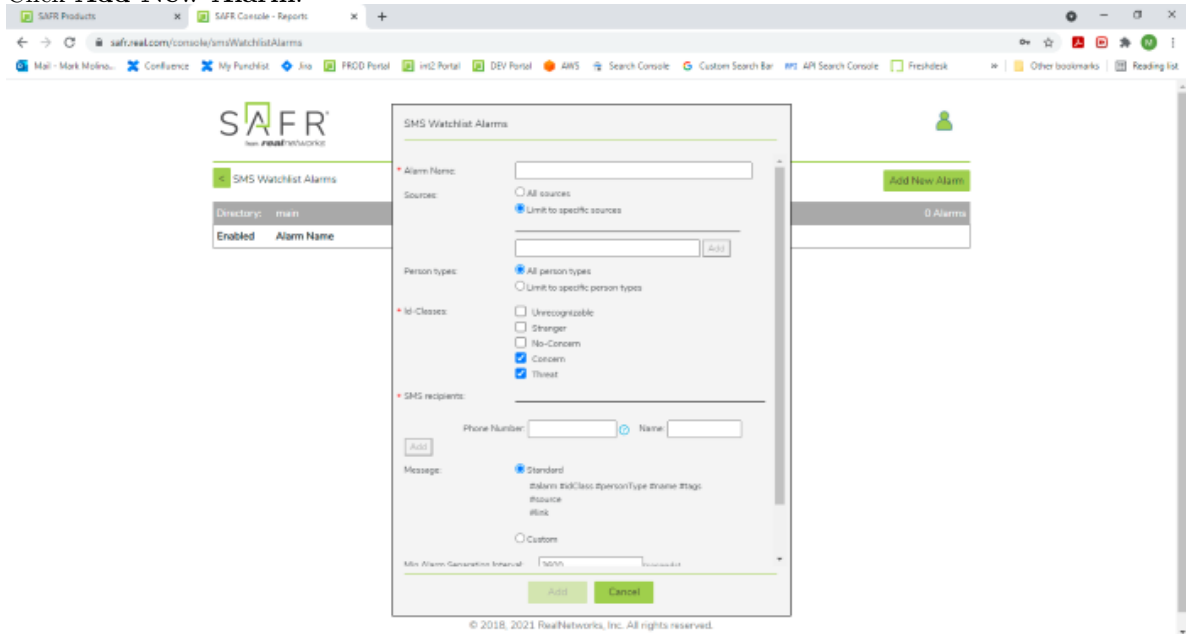
- **SMS Provider:** Your SMS Provider. You can select either *SAFR Cloud* or *Amazon SNS* from the drop-down menu. The *SAFR Cloud* provider is much easier to set up however, so you should probably select the default **SMS Provider**, *SAFR Cloud*.
 - **Test Message:** Send a test message to verify that your SMS is properly configured.
 - **To Phone Number:** The phone number to which the test message will be sent. The number should be in the E.164 format. (e.g. +12065551313)
 - **Message:** The text message that will be sent.
3. Click **Apply**.
4. Verify that the specified phone received a test SMS message.

1.6 Set Up the SMS Watchlist Alarms Dashboard

To set up the SMS Watchlist Alarms Dashboard, do the following:

1. Go to the Web Console's Report Page.
2. Click on the SMS Watchlist Alarms Dashboard.

3. Click **Add New Alarm**.



4. Enter an **Alarm Name**. (e.g. "SoutheastDoor")
5. For **Sources**, select *Limit to specific sources*, and select all the cameras that are monitoring one of the entrances to your facility.
6. For **SMS recipients**, enter the **Phone Number** and **Name** of every person you want to receive SMS notifications. (Make sure to click **Add** after you enter the information for each person.)
7. Enable **Separate alarms across different sources**.
8. Enable **Separate alarms across different identities**.
9. Click **Add** at the bottom of the dialogue.
10. Repeat steps 3-9 for each door into your facility that you're monitoring.

1.7 Register Threats

You'll need to register all the people that you want to be on the lookout for, either from saved photos or via a connected camera.

1.7.1 Register a Person Into SAFR Using a Photo

To register a person from a photo, do the following:

1. Open the SAFR Desktop Client.
2. Navigate to the People Window by selecting **People...** from the **Tools** drop-down menu.
3. Click the **Add face** button near the top of the People Window.
4. Select the photo image located on your hard drive.
5. Any photo that has sufficient quality for recognition will show a purple oval around the face with the option to click and add a name. Type a name if desired.

Note: It's very helpful to use as high quality a photo as possible.

1.7.2 Register a Person Into SAFR Using a Connected Camera

To register a person using a connected camera, do the following:

1. Open the SAFR Desktop Client.
2. Select the **Learn and Monitor** video processing mode from the drop-down menu in the upper right corner of the Camera Feed Analyzer window. (i.e. the client's default window)

3. Select a connected camera from the **Camera Selector** drop-down menu.
4. Show the subject's face to the selected connected camera and wait for the overlay oval around their face to display the message "Click face to register".
5. Click the face and enter the subject's name.

Note: Don't forget to change the video processing mode to **Secure Access** if you want to use the camera as part of the SMS Watchlist Alarms.

1.7.3 Configure a Registered Person as a Threat

To configure a registered person as a threat, do the following:

1. Open the SAFR Desktop Client.
2. Navigate to the People Window by selecting **People...** from the **Tools** drop-down menu.
3. If you want to see most recently added people, sort by *Enrollment Date*, and set sort order to *Descending* in order to see the newly added entries.
4. You can remove people already marked as *Threat* or *Concern* by filtering on ID Class for *No Concern*.
5. For each user you want to configure as a threat:
 1. Double-click the user.
 2. Choose *Threat* or *Concern* from the **ID Class** menu list.
 3. In the Desktop Client, that person will now be marked with a red oval overlay to indicate a *Threat* or an amber oval overlay to indicate a *Concern*.

1.8 Test Your SMS Watchlist

To test the system that you have just set up, do the following:

1. Register yourself with SAFR, as described above.
2. Configure yourself as a threat, as described above.
3. Hide your face from all connected cameras.
4. Show your face to a connected camera and wait for SAFR to recognize you.
5. Upon recognition, you should see the following:
 - A red oval should be drawn around your face in SAFR's video feed, indicating that you're a threat.
 - Your phone should receive an SMS message.
6. Note that the SMS message contains a link to the event that caused the SMS Watchlist Alarm to be triggered. If you tap on the link, the SAFR Mobile Client will start and you'll be shown the triggering event.

If you don't see the red oval, try the following troubleshooting steps:

1. If you see errors with the login, ensure that your account information is correct.
2. If you see a "Too Late" message, the machine running the Desktop Client and the machine running ARES may not be set to the same time. Correct this and try again.
3. Check the ARES log (located at `C:\ProgramData\RealNetworks\SAFR\ares\logs`) to see if there are any clues there.
4. Contact RealNetworks technical support.