Honeywell

# VoiceCheck 1.11

## Implementation Guide

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CHAPTER

# 1 INTRODUCTION

VoiceCheck is designed to integrate with and support various IT infrastructures, databases, and operating systems.

This documentation is for VoiceCheck 1.11. This middleware component supports the following applications used on Voice devices:

- GWS App 4.2 or greater used with GWS Checklist Plug-In 2.0 or greater (see help delivered with the GWS software bundle)
- Directed Work M&I Android App (see the Release Notes and Implementation Guide delivered with the 1.10 release for details)
- Directed Work Talkman Voice Application (VAD) (see the Release Notes and Implementation Guide delivered with the 1.8 release for details)

Depending on your system configuration, the hardware and software requirements may vary. Review the pages in this section to ensure your configuration is sufficient for a supported implementation of VoiceCheck.

- Plan your implementation.
- Install and configure VoiceConsole.
- Install VoiceCheck.
- Obtain and install an HTTPS certificate.
- Prepare Talkman devices for inspection work.
- Understand web services used for data import and export.
- Understand system configuration settings.
- Provision your cloud setup.

To get started, first configure your hosting solution then configure user options.

## Customer Support

Find most Honeywell Voice technical documentation help.honeywellaidc.com

## Honeywell Reseller Services

If you purchased equipment or services through a Vocollect reseller, please contact your reseller first for support or to purchase a support plan.

## Honeywell Technical Support

Submit incidents or questions to http://honeywell.custhelp.com or contact Honeywell Technical Support Center:

United States:
E-mail: VoiceTechnicalSupport@honeywell.com
Phone: 866 862 7877

Americas (outside U.S.), Australia, New Zealand:
E-mail: VoiceTechnicalSupport@honeywell.com
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Contact Honeywell Customer Service for order placement, order status, returns, Return Material Authorization (RMA) status, or other customer service issues:

United States:
E-mail: vocollectRequests@honeywell.com
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## Honeywell RMA

To return equipment for repair contact Honeywell RMA to request an RMA number.
Email: ACSHSMVocollectRMA@honeywell.com

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CHAPTER

2

# HOSTING OPTIONS

The VoiceCheck server can be hosted on a local machine or in the cloud.

If you have already set up your hosting solution, you are ready to perform your VoiceCheck Installation

## Local Hosting

When you plan the VoiceCheck implementation, you must scale the hardware resources to meet the minimum requirements for the expected load. For the VoiceConsole server, determine the number of devices to be supported at a time. For the VoiceCheck server, consider the number and size of assignments and the number of technicians performing inspections concurrently.

Honeywell has tested the following hardware configuration under various loads.

- One physical VoiceConsole application server (for Talkman only)
- One physical VoiceCheck application server
- One physical database server with two MS SQL Server databases

### Hardware Configuration for VoiceCheck

When supporting 300 to 600 devices, Honeywell recommends that you install a single VoiceCheck application server and a single database server.

| Application Server | |
|---|---|
| Processor | 3 x Dual Core, 3.0 GHz |
| Memory | 3 x 4 GB DDR<br>Note: Physical memory greater than 4 GB requires a 64-bit operating system. |
| Hard Drive | 120 GB |
| Drive Speed | 15000 rpm |
| DVD Drive | Yes |
| Server Network Switch | 1 Gb |
| WAN Throughput | Sufficient resources to support 387404.88 bps to 774809.84 bps data transfer |

| Database Server | |
|---|---|
| Processor | 1 processor or simulated processor for every 150 to 200 concurrent technicians , 2.5 to 3.0 GHz |
| Memory | 1 GB for every 200 concurrent technicians |
| Hard Drive | 1 GB for every 50,000 steps. For example, for 10,000 assignments with about 200 steps per assignment, the database would require 40 GB of space without any data purge. (10,000 * 200) / 50,000 = 40 |
| Server Network Switch | 1 Gb |
| WAN Throughput | Sufficient resources to support 387404.88 bps to 774809.84 bps data transfer |

> **NOTE**
> The number of technicians and client workstations put different demands on the database. For best performance, Honeywell recommends implementing hardware configurations on the high end of the requirements.

## Supported Environments

| Supported Environments | |
|---|---|
| VoiceCheck Server Operating System | • Microsoft Windows Server 2022<br>• Microsoft Windows Server 2019 |
| VoiceCheck Server Database | • Microsoft SQL Server 2022<br>• Microsoft SQL Server 2019<br>• Microsoft SQL Server 2017<br>• Microsoft SQL Server 2016 |
| VoiceCheck Application Server | • Apache Tomcat version 9.0.106 |
| VoiceCheck Web Browser | • Google Chrome 31.x and newer<br>• Mozilla Firefox v. 20.0 and newer |

| Supported Environments | |
|---|---|
| VoiceCheck Languages | • U.S. English (en_US)<br>• German (de_DE)<br>• Latin American Spanish (es_MX)<br>• Japanese (ja_JP)<br>• French Canadian (fr_CA)<br>• European French (fr_FR)<br>• Netherlands Dutch (nl_NL)<br>• Chinese–Mandarin (zh_CN) |

**IMPORTANT**
See the VoiceConsole Implementation Guide for detailed requirements for that product.

## Required Solution Components

In addition to the server hardware, the operating system and databases, VoiceConsole, and VoiceCheck, you will need components that deliver voice instructions to technicians.

### Devices Running VoiceCheck App

VoiceCheck is supported on the Talkman A700x series and Honeywell Android devices.

- The Talkman A730x has an integrated scanner that supports short-range scanning of 1D and 2D barcodes. Other Talkman A700x solution devices are available if the scanning feature is not needed.
- Optional belts and holsters are available if you intend the technicians to wear the Talkman devices.
- Honeywell recommends purchasing one device for every non-overlapping technician per shift.
- Honeywell CT30XP with Android 12
- Honeywell CT40 with Android 12
- Honeywell CT40XP with Android 12
- Honeywell CT45 with Android 12
- Honeywell CT45XP with Android 12
- Honeywell CT60 with Android 12
- Honeywell CT60XP with Android 12
- Honeywell CW45 with Android 12

### Honeywell SRX3 Wireless Headsets

- These speech-recognition headsets feature industrial grade use of Bluetooth wireless technology, optimal noise cancellation, an adjustable microphone boom, and a lightweight headband.
- The headset electronics module may be shared among technicians, while the headband remains assigned to a single user for hygiene purposes.
- Accessories are available to fit different work environments.
- At a minimum, Honeywell recommends purchasing one headband for every technician and one electronics module for every non-overlapping technician per shift.

### Honeywell device/battery chargers

- The Talkman A700x solution offers a 6-Bay Device Charger and a 12-Bay Battery Charger, both capable of being wall mounted.
- The SRX3 Headset Battery Charger can charge up to 20 batteries at one time, and it can be wall mounted to keep it secure.

### Battery Performance

From a full charge, a standard Talkman A700x battery has 14 hours of projected life. An A700x high capacity battery has 24 hours of projected life.

Standard Talkman batteries will meet the requirements of a full shift operation in room-temperature environments and typical A700x device configurations for about 1.5 years. High capacity batteries will meet the requirements of a full shift operation in room-temperature environments and typical A700x device configurations for about 3 years.

The SRX3 headset batteries with a full charge last up to 20 hours at room temperature.

# Solution Architecture Options

VoiceCheck can be installed with different architecture models, depending on requirements and available resources.

# Decentralized vs. Centralized Models

## Decentralized Architecture

A decentralized architecture model installs solution components at each site where voice is supported. In this model, the VoiceConsole and VoiceCheck applications and their related databases are installed at every site.

This type of installation enables the application to be installed and upgraded locally and limits the reliance on remote access.

## Centralized Architecture

VoiceCheck can be implemented with a centralized architecture model, where one instance of VoiceConsole and one instance of VoiceCheck provide inspection management features for technicians working at multiple sites. In this scenario, the databases and applications are installed at a single site, and that installation is used to monitor and record inspection functions being performed at one or more remote sites.

### Benefits

- Centralized Management: VoiceCheck does not need to be implemented separately at each site or distribution center.
- Site-Segregated View: A user with the proper privileges can easily switch between one site's data and another site's data.
- Secure Access: Only users with the proper privileges can view and manage multiple sites.
- Importing Software Components Across Multiple Sites: A user can import data for multiple sites on one server.

### Considerations

- Network Requirements: Network bandwidth must be sufficient to handle activity at all managed sites, especially at shift starts. Remote access must be secure and provide sufficient performance for technicians accessing the VoiceCheck user interface.

# Single Server vs. Multiple Server Models

## Single Application Server Solution

VoiceCheck and VoiceConsole can be installed on the same server, in any order, but cannot share the same database. However, the database information for the first application installed can often make it easier to install the second application.

The two applications do require separate installations of Apache Tomcat and must be configured to use separate TCP/IP communication ports in order to avoid port conflicts. Honeywell recommends that the first installed application be running when the second is installed so that ports in use can be detected.

## Multi-Server/Multi-Site Solution

If you plan to install VoiceCheck and VoiceConsole on separate servers ***and*** configure multiple sites in each application, there are important issues to consider in planning. A site is the location where a technician, who is wearing a Talkman device and following a voice-directed workflow, is working.

See also Creating Additional Sites for Multi-Site Implementations for instructions on creating additional sites in both applications.

### Time Zone Considerations in Multi-Site Implementations

Time zones affect the time stamps that are recorded for VoiceCheck and VoiceConsole activity.

- Actions performed by technicians: The time zone is defined by the VoiceConsole site with which each device is associated. Therefore, time stamps in device messages are set according to the time zone on the VoiceConsole server.
- Actions performed by VoiceConsole users: The time stamps are set by the VoiceConsole server.
- Actions performed by VoiceCheck users: The time stamps are set by the VoiceCheck server.

Both VoiceCheck and VoiceConsole have rules about when certain actions can be performed. If time stamps differ, due to either of the following scenarios, it can cause unexpected errors.

- **Multi-Server Implementations**: In implementations where VoiceCheck and VoiceConsole are installed on different servers, the time on these must be servers synced. This is not an issue if VoiceCheck and VoiceConsole are installed on the same server.
- **Multi-Site Implementations**: When you set up a site in either VoiceCheck or VoiceConsole, you must specify the time zone where that site is located. You must ensure that the same time zone is specified for a site in both applications. You are not required to specify the same site name; however, Honeywell recommends that you use the same site name for simplicity.

Once the sites are set up in both applications, load a device profile for each site.

### Voice Process Software in Multi-Site Implementations

VoiceCheck is designed to work with voice applications, Honeywell's voice process software.

When using multiple sites in VoiceCheck with voice application software, perform the following procedure:

1. In VoiceConsole, create a new task package and select to **Import New Task** from the **Name** drop-down list on the **Create Task Package: Select Task** page.
2. On the **Create Task Package: Set Sites** page on the **Task Settings** tab, enter the site for which you are creating the task package in the **SiteName** field.
   If the **SiteName** field is not available, this process cannot be performed.
3. Complete the task package creation process.
4. Repeat the previous three steps for each site supported.

## Database Servers

For best performance, Honeywell recommends installing the VoiceCheck database on a separate server from the application, although a single server implementation is supported.

Honeywell recommends that you ***not*** install the VoiceCheck application and database and the VoiceConsole application and database all on a single server to avoid the single point of failure scenario.

# SSO Introduction

This process details using VoiceCheck with OAuth2-based single sign on. The OAuth provider is a third-party and the provider can be selected from any that meet the standards.

## How It Works

SSO is configured during the installation for the VoiceCheck server and must also be configured within the Android VoiceCheck application.

### VoiceCheck Server

### Login

When the VoiceCheck server is configured with SSO authentication over basic authentication, VoiceCheck no longer manages user credentials and passwords. Instead, VoiceCheck relies on the user being logged onto their provider. When a user tries to access VoiceCheck:

- If the user is logged onto their provider and is an authorized user in VoiceCheck, the VoiceCheck interface opens
- If the user is not logged onto their provider, the user is directed to the provider logon page, then directed back to VoiceCheck after a successful logon.
- If the user is not logged onto their provider, the user is directed to the provider logon page, then directed to a VoiceCheck error page after an unsuccessful logon.
- If a user is logged onto their provider, but is not an authorized VoiceCheck, the user is directed to a VoiceCheck error page.

### Logout

The logout link is still provided within the upper right corner of the VoiceCheck interface. Logout behavior depends if the *SSO_Logout_Url* has been configured.

If *SSO_Logout_Url* is configured, the user should be directed to the to the endpoint of their OAuth provider where the user can choose:

- Yes - To logout from the OAuth provider. The user would have to log onto the OAuth provider again to use VoiceCheck.
- No - The user is directed back to VoiceCheck and the user remains logged into their OAuth provider. The user would not be required to log in again to use VoiceCheck.

If *SSO_Logout_Url* is not configured, the user's VoiceCheck session is ended. if the user tries to access VoiceCheck again, the user's status with the OAuth provider would be checked and may require a login if their session has expired.

> **NOTE**
> VoiceCheck does not listen for logouts at the OAuth provider's end. A user could be logged out of their OAuth provider but would remain logged into VoiceCheck.

## User / Operator Management

With SSO authentication all password related entries are removed from the Create/Edit User and Create/Edit Operator screens.

The only item that can be edited on the profile screen is the email field. if the profile is updated, the user is logged out as VoiceCheck and directed to the SSO logout page. However, the user still maintains the session with the identity provider. If the user tries to log back into VoiceCheck there is no SSO credential entry necessary.

When importing users/operators into an SSO-enabled instance of VoiceCheck the forced password reset prompt does not occur.

## System Configuration

With SSO authentication the following items are removed from the System Configuration screen:

- User Authentication
- LDAP Configuration
- Password Expiration Settings

## Inspection Application

### Sign On

The mobile app acquires an access token from the OAuth provider. This token is sent in place of the user password. See SSO Configuration for configuration details.

When logging on, the user is directed to an intermediate screen in the VoiceCheck app and must click **Ready** to be directed to a sign on screen with the identity provider. After that screen is completed successfully, the user is returned to the VoiceCheck application.

### Take a Break

When the user selects **take a break**, the user is prompted for the break type. With SSO enabled, the user does not log out when taking a break and therefore does not have to log on after the break ends. Instead the user selects **Ready** from the **Return From Break** screen.

### Session Timeout

When the SSO session times out, the user is directed to an intermediate screen in the VoiceCheck app and must click **Ready** to be directed to a sign on screen with the identity provider. After that screen is completed successfully, the user is returned to the VoiceCheck application.

### Logout

When the user selects **sign off** the behavior depends on configuration.

- If a logout endpoint has been specified, the user is logged out from VoiceCheck and their identity provider.
- If a logout endpoint has not been specified, the user is not logged out from the identity provider. The user can access the app again without needing to log into the identity provider again.

## A700x

The A700x does not support single sign on.

## Web Services

## REST Web Services

Under basic authentication, each request was required to provide authentication details (username and password).

With SSO, these calls must authenticate with an access token.

Failed validations are reported in the notifications table, viewable by selecting **Administration** > **Notifications**.

### Authorization Header

- The Authorization header defines the scheme used
- Auth scheme is limited to JWT and bearer

Sample Authorization Header

```
'authorization: JWT eyJhbGciOiJSUzI1NiIsInR5cCI6I'
'authorization: Bearer eyJhbGciOiJSUzI1NiIsInR5cCI6I'
```

### User Header

- User must be registered in VoiceCheck
- User must be registered in Provider

- Token must belong to provided user
- Requests with invalid tokens are rejected
- Requests with expired tokens are rejected
- Only JWT tokens are accepted. Opaque are not supported
- User should have Web services role in order to access REST API

Sample User Header

```
'user: joe'
```

### Customer Header

- Must include the name of a user already registered with VoiceCheck
- The access token in the Authorization header must belong to this user

### SOAP Web Services

SOAP web services are not supported in an SSO environment.

# SSO Configuration

## VoiceCheck

SSO is enabled during VoiceCheck installation for authentication. The installation wizard asks for the following items.

| Name | Description |
|---|---|
| Enable SSO Configuration | Select Yes to enable SSO or select No to skip SSO setup. |
| Admin User | Create the initial user. This user can then add additional VoiceCheck users after installation is complete. |
| Client Id | ID assigned by SSO provider |
| Client Secret | Secret assigned by SSO provider |
| Authentication URL | Provider end point for authentication |
| Token URL | Provider end point to obtain access token |

| Name | Description |
|---|---|
| Issuer URL | Provider end point |
| JWKS URL | Provided end point for token signature validation |
| Redirect URL | VoiceCheck end point for login success, for example: https://localhost:8443/VoiceCheck/core/operator/default.action |
| User Info URL | End point to get user details from SSO provider |
| Audience | Optional provider provided setting |
| Logout URL | Optional provider end point for user logout |
| Username Attribute | sub (Attribute in JSON response that contains username) |
| Scopes | User's OAuth scopes |

The default value for SSO_Scopes is openid, offline_access.

## VoiceCheck App

Before starting the application, edit the OnetimeStartupSettings.config file to set the SSO properties for the application. Copy this file to the following location file or use an MDM software to push the file to :

```
/Internal shared
storage/Android/data/com.honeywell.sps.wfs.mandi/files/Configuration/OnetimeStartupSettings.config
```

Sample file:

```
{
    "Repositories": {
        "InspectionConfig": {
            "SecureConnections": "false",
            "WorkflowFilterChoice": "Server",
            "Host":"<Host>",
            "Port":"<Port>",
            "ClientId": "0oa1pune56qcbKhul0h8",
```

```
            "Scope": "openid email offline_access profile",
            "AuthFlow":"PKCE",
            "SingleSignOn":"true",
            "UserAttribute":"sub",
            "AuthorizationEndpoint":"<authorization url>",
            "TokenEndpoint":"<token url>",
            "UserInfoEndpoint":"<user info url>",
            "RevocationEndpoint":"<revocation endpoint url>"
        }
    }
}
```

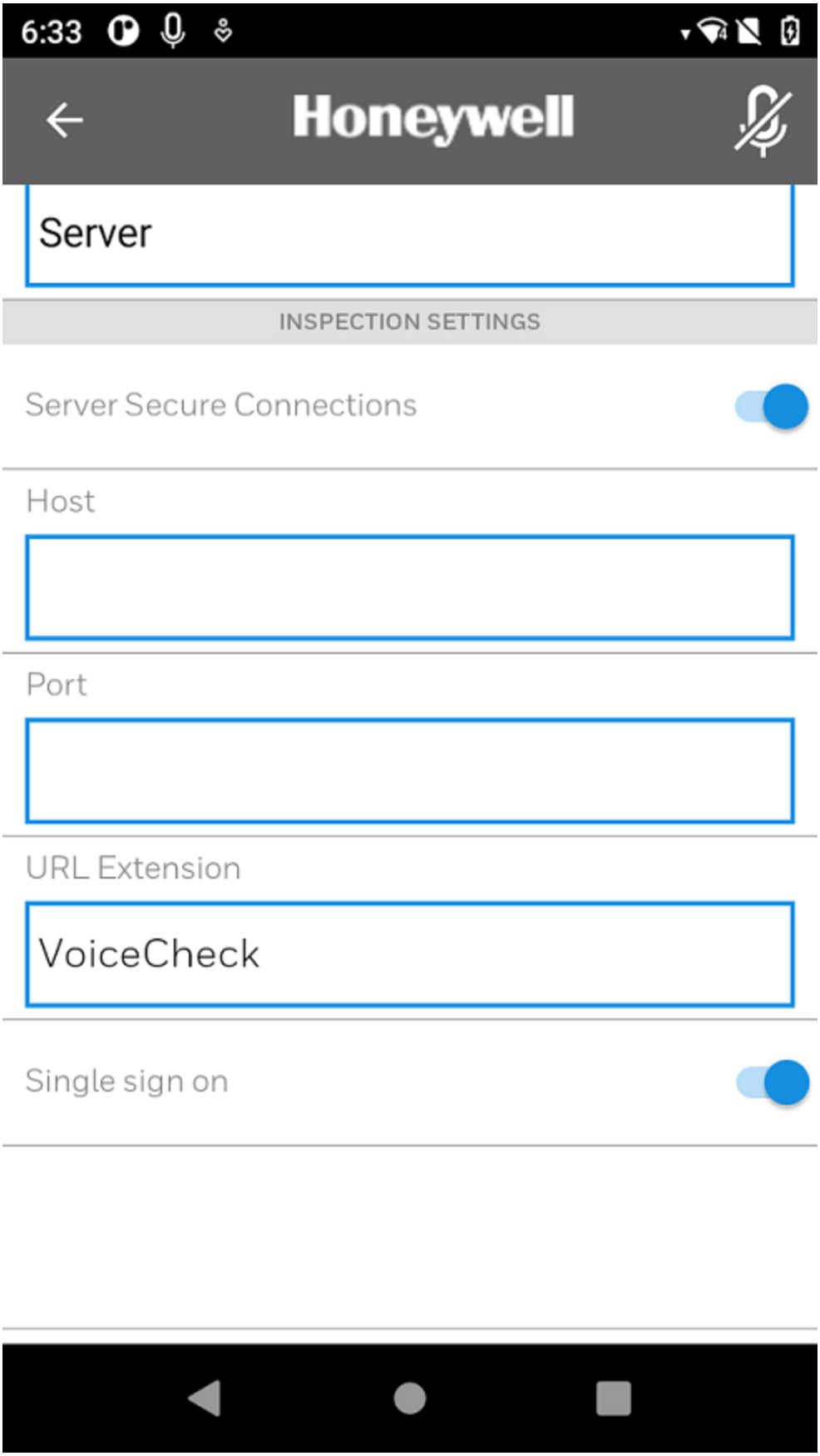
The table below describes the possible entries for the OnetimeStartupSettings.config file.

| Name | Description | Default |
|---|---|---|
| SingleSignOn | Single Sign On, set to true to enable SSO (boolean) | false |
| IssuerURL | Provider end point (string) | |
| ClientId | ID assigned by SSO provider (string) | |
| AuthFlow | Authorization flow, either PKCE or NAPPS (string) | PKCE |
| Scope | Scope (string) | openid profile email offline_ access |
| TokenType | Token type exhanged by provider JWT or Opaque (string) | JWT |
| SupportRefresh | If the identity provider supports refresh tokens (boolean) | false |
| AuthProtocol | Authorization protocol OAuth2.0, OAuth, SAML (string) | OAuth2.0 |
| IDPTokentime | Time in seconds where the app is going to validate the access token with server (double) | 14400 |
| AuthorizationEndpoint | URL to obtain auth token (string) | |

| Name | Description | Default |
|---|---|---|
| TokenEndpoint | URL to obtain the acces/refresh token (string) | |
| UserInfoEndpoint | URL to obtain information from the user (string) | |
| RevocationEndpoint | URL to revoke the access/refresh token (string) | |
| EndSessionEndpoint | URL to clear cookies in browser for access/auth token (string) | |
| UserAttribute | The attribute to be sent to the VoiceCheck server as operator (it has to be identical to the one configured by the server) (string) | |

Next enable Single Sign On from the Settings screen of the VoiceCheck App.

> **IMPORTANT**
> To switch from basic authentication to SSO, the app must be unistalled and then reinstalled.


6:33
Honeywell
Server
INSPECTION SETTINGS
Server Secure Connections
Host
Port
URL Extension
VoiceCheck
Single sign on

This SSO workflow is as follows:

1. User starts the mobile app and clicks to login.
2. The mobile client redirects to the IDP via the Callback URL entered above and exchanges certificates.
3. The IDP authenticates the user via the login and consent responses.
4. The IDP returns tokens for the authentication process.
5. The app uses the token to authenticate requests to the server.

# Error Handling

## VoiceCheck

Review the notifications table for errors related to SSO. This table is viewable by selecting **Administration** > **Notifications**.

## VoiceCheck App Errors

The identity provider may display error messages when there is a problem with the sign on.

| Type | Message | Details |
|---|---|---|
| Error | Missing/incorrect SSO parameters. Verify the parameters with the administrator | The user has not entered all the parameters via the OneTimeStartupSettings.config file needed for the sign on process: callback URL, client ID |
| Error | Error during the sign-in process. Contact your administrator | Authorization code validation failed, the state sent in the request auth is different from the one obtained in the response of the request auth |
| Error | Error during the sign-in process. Contact your administrator | Malformed generated exchange request |
| Error | Missing/incorrect SSO parameters. Verify the parameters with the administrator | Unknown scope sent in the auth request in the IDP |
| Error | Error during the sign-in process. Contact your administrator | Incorrect parameters in the access request |
| Error | Error during the sign-in process. Contact your administrator | Failed getting the access request |
| Error | Error during the sign-in process. Contact your administrator | The userinfo endpoint does not contain the required sub parameter to get the user information |
| Information | Not implemented functionality | When the user enters a different authorization protocol in the OneTimeStartupSettings.config, only PKCE is currently supported |
| Warning | User has canceled the sign-in. Try again | The user has canceled the sign in process, for example closed the IDP credentials page |
| Warning | User has not consented the usage of its information | The user has not consented to the usage of information by VoiceCheck, in the consent screen, the user clicked on not consent |

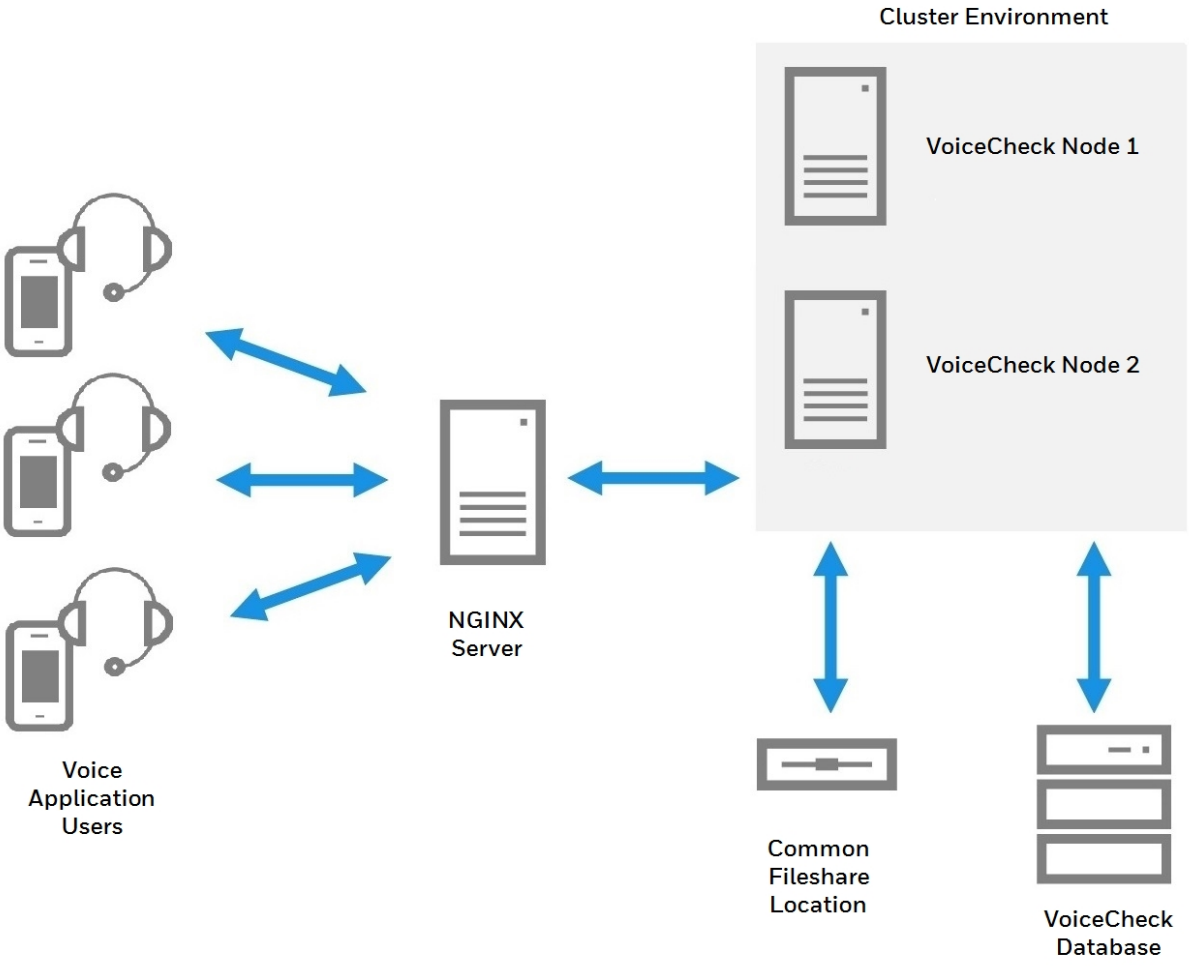
# Load Balancing

Load balancing provides a single interface to distribute the traffic across a group of VoiceCheck servers. Load balancing is not the same as failover, since failover only has one active server at any given time.

# How it Works

NGINX is an open source web server that provides load balancer services among other features such as reverse proxy that support VoiceCheck in a load balanced environment. Load balancing is supported via HTTP or HTTPS.

A typical load balanced installation would look like this.




Load balancing can be used for HTTP or HTTP connections.

NGNIX supports several load balancing methods. The method is specified in the NGINX config file.

- **Round Robin**: Requests are distributed equally across the servers, with server weights taken into consideration. This is the default method, so it is used if no method is specified.
- **Least Connections**: A request is sent to the server with the least number of active connections, with server weights taken into considerations.
- **IP Hash**: This method is used to determine what server should be selected for the next request. In this type of case, either the first three octets of the IPv4 address or the whole IPv6 address are used to calculate the hash value.
- **Generic Hash**: The server to which a request is sent is determined from a user-defined key which can be a string, text, variable or a combination. For example, the key may be a paired source IP address and port, or key may be a UR.
- **Least Time**: For every request, NGINX selects the server with the lowest average latency and the lowest number of active connections, where the lowest average latency is calculated based on which of the following parameters to the least_time directive is included.

When working with NGINX, the following server start/stop commands may be used:

- start nginx - nginx server start
- nginx -s stop - fast shutdown
- nginx -s quit - graceful shutdown
- nginx -s reload - changing configuration, starting new worker processes with a new configuration, graceful shutdown of old worker processes
- nginx -s reopen - reopening log files

## Tips for Working in Load Balanced Environments

By design, some features in a load balanced environment are limited to the primary node.

- Only the primary node can automatically execute jobs from the Schedules tab.
- Start/stop export requests can only be executed from the primary node. The user must be logged into the primary node to perform these actions.
- The Export Settings under System Configuration can only be changed from the primary node.

If a node goes down, users with requests sent to that node may be directed to log in again and may hvae a valid license not found messages. If this happens, Android users should log in again. Talkman users should releoad the task package. The users are then reconnected to an active node.

# Installing into a Load Balancing Environment

## Prerequisites

When installing the application on a Windows Server load balancing environment, you must perform the following steps:

1. Download the latest version of NGINX from https://nginx.org/en/download.html.
2. Extract the zip file. In this example, the nginx.exe file is unzipped to the C:\nginx folder.
3. Replace the nginx.config file, located at C:\nginx\conf with the config gfile provided below. This sample config file must be modified by replacing <ip_address>:<port_number> with the appropriate IP address and port number.
4. Install the application on the first node. Note that you will need to provide some additional information when installing in a load balanced environment.
5. Install the application on each additional node. Most of the information is defaulted, based on the information provided in the first installation. In most cases, the information should not be changed when installing the additional nodes.
6. Ensure that all the nodes have access to the shared storage location.

## Sample NGINX.Config file

This sample config file supports both HTTP and HTTPS.

```
#user  nobody;
                        worker_processes  1;

                        #error_log  logs/error.log;
                        #error_log  logs/error.log  notice;
                        error_log  logs/error.log  info;

                        #pid        logs/nginx.pid;


                        events {
                        worker_connections  1024;
                        }


                        http {
```

```
                        include       mime.types;
                        default_type  application/octet-stream;
                        #add_header X-Request-ID $request_id;

                        #log_format  main  '$remote_addr - $remote_user [$time_
local] "$request" '
                        #                  '$status $body_bytes_sent "$http_
referer" '
                        #                '"$http_user_agent" "$http_x_
forwarded_for" $request_id'
                        #              'rt=$request_time uct="$upstream_
connect_time" uht="$upstream_header_time" urt="$upstream_response_time"';

                        log_format upstreamlog '[$time_local] $remote_addr -
$remote_user - $server_name $host to: $upstream_addr: $request $status
upstream_response_time          $upstream_response_time msec $msec request_time
$request_time';



                        #access_log  logs/access.log  main;
                        access_log logs/access.log upstreamlog;
                        sendfile        on;
                        keepalive_timeout  65;




                        #servers to balance for HTTP
                        upstream voicecheckhttp {
                        #uses only the first three octets of the IP address for
selecting the backend node
                        ip_hash;
                        #nginx use the complete remote IP address for hash
                        #hash $remote_addr;
                        keepalive 100;
                        server <ip_address>:<port_number>;
                        server <ip_address>:<port_number>;
                        }

                        #servers to balance for https
```

```
                        upstream voicecheckhttps {
                        #uses only the first three octets of the IP address for
selecting the backend node
                        ip_hash;
                        #nginx use the complete remote IP address for hash
                        #hash $remote_addr;
                        keepalive 100;
                        server <ip_address>:<port_number>;
                        server <ip_address>:<port_number>;
                        }

                        server {
                        listen      <Nginx port_No>;
                        server_name  <Nginx server ip_address>;

                        location / {
                        proxy_pass http://voicecheckhttp;
                        proxy_set_header    Host    $http_host;
                        #client_max_body_size should be modified based on what
the application supports.
                        client_max_body_size 100M;
                        #proxy_set_header X-Request-ID $request_id;
                        }

                        #error_page  404              /404.html;

                        # redirect server error pages to the static page
/50x.html
                        #
                        # error_page   500 502 503 504  /50x.html;
                        # location = /50x.html {
                        #     root   html;
                        # }
                        }

                        server {
                        listen       <Nginx port_No> ssl;
                        server_name  <Nginx server ip_address>;

                        # openssl req -x509 -nodes -days 1000 -newkey rsa:2048
-keyout nginx-selfsigned.key -out nginx-selfsigned.crt
```

```
                        ssl_certificate     "C:\\certs\\cert1\\nginx-
selfsigned1.crt";
                        ssl_certificate_key "C:\\certs\\cert1\\nginx-
selfsigned1.key";
                        ssl_protocols       TLSv1 TLSv1.1 TLSv1.2;

                        #access_log  logs/host.access.log  main;

                        location / {
                        proxy_pass https://voicecheckhttps;
                        proxy_set_header    Host    $http_host;
                        client_max_body_size 100M;
                        }
                        #error_page  404              /404.html;

                        # redirect server error pages to the static page
/50x.html
                        #
                        #  error_page   500 502 503 504  /50x.html;
                        #  location = /50x.html {
                        #     root   html;
                        #  }
                        }


                    }
```

**IMPORTANT**
All items above in brackets, such as <ip_address> are placeholders that must be replaced with the actual value.
SSL items, such as ssl_certificate, list an absolute path. Modify this path as necessary.

## HTTPS Communications

Refer to http://nginx.org/en/docs/http/configuring_https_servers.html for Nginx HTTPS setup.

For information on using HTTPS with VoiceCheck see Security Considerations.

### Certificates and Android Devices

Ensure the Android device and the NGINX server are on the same network and verify the Android device can log into the NGINX HTTPS application URL

## Installation Wizard

> IMPORTANT
> The primary node must be installed first.

### Install Primary Node

On the Cluster Configuration Screen of the installation wizard:

1. Check **Load Balanced Environment**.
2. Check **Will this instance be the primary node?**
3. Enter the **Shared Storage** path chosen.
4. Complete the installation for this node.

### Install Non-Primary Node

On the Cluster Configuration Screen of the installation wizard:

1. The primary node instance installation must already be completed.
2. Check **Load Balanced Environment**.
3. Do not check **Will this instance be the primary node?**
4. Enter the **Shared Storage** path chosen.
5. Complete the installation for this node.
6. Repeat for any additional non-primary nodes.

> NOTE
> Silent installation may also be used for these nodes .Click the **Generate script** button at the end of an install to generate an .xml file containing the installation selections. Use this script to perform additional silent installations.

# Network Configuration

The VoiceConsole server and its database and the VoiceCheck server and its database communicate constantly and should be installed with the fastest possible network connections between them.

Honeywell recommends that you install the servers and the databases on the same local network subnet.

# Network Protocols and Ports

VoiceConsole uses the following protocols.

- Internet Control Message Protocol (ICMP)
- Hypertext Transfer Protocol (HTTP)
- Hypertext Transfer Protocol with Secure Sockets Layer (HTTPS)

VoiceCheck uses the following protocols.

- Hypertext Transfer Protocol (HTTP)
- Hypertext Transfer Protocol with Secure Sockets Layer (HTTPS)
- Internet Protocol Suite (TCP/IP)
- Simple Mail Transport Protocol (SMTP)

VoiceConsole and VoiceCheck use the following ports by default. If these ports are not available, the next available ports in sequence are used. An advanced Apache Tomcat user can change the Tomcat-related ports after installation if necessary.

## VoiceCheck

| Port | Connection | Process | Comments |
|---|---|---|---|
| 9070 | HTTP | Apache Tomcat Service | Used for proper startup and shutdown. |
| 9071 | HTTP | Apache Tomcat Service | If the standard port 9070 is not available, VoiceCheck looks for and uses the next available port. |
| 9445 | HTTPS | Apache Tomcat Service | Used for startup and shutdown in an SSL-secured environment. |
| 9008 | TCP/IP | Shutdown listener | |
| 9012 | TCP | AJP | AJP is a standard component of Apache Tomcat. It is a connector between Tomcat and its servlet container. It forwards the requests received from the browser to the servlet container. VoiceCheck uses it in its default configuration. |

## VoiceConsole

| Port | Connection | Process | Comments |
|---|---|---|---|
| 9090 | HTTP | Apache Tomcat Service | Used for proper startup and shutdown. |
| 9091 | HTTP | Apache Tomcat Comet API | The Comet API is used for asynchronous responses. |
| 9443 | HTTPS | Apache Tomcat Service | For inbound, browser-only, encryption. |
| 9006 | TCP/IP | Shutdown listener | |

| Port | Connection | Process | Comments |
|---|---|---|---|
| 9010 | TCP | AJP | AJP is a standard component of Apache Tomcat. It is a connector between Tomcat and its servlet container. It forwards the requests received from the browser to the servlet container. VoiceConsole uses it in its default configuration. |

# VoiceCheck Upgrades

The VoiceCheck installation program can be used to perform a VoiceCheck upgrade as well. Before upgrading your existing version of VoiceCheck to a new version of the product, consider the following guidance.

## Silent Upgrades

> IMPORTANT
> Before performing a silent upgrade to VoiceCheck 1.11, review Silent Installation.

## General Guidance

### Backing Up and Re-creating Data

- Back up your existing database before upgrading VoiceCheck to reduce the risk of data loss.
- Preserve any customizations created on your existing system before beginning the upgrade to the new system. After the upgrade, you will need to restore these customizations.

### Database Upgrades

- Upgrade from one database platform to another are not supported..
- The upgrade installer cannot be used to upgrade from one version of the database server to another. You should contact the database vendor.
- When an original VoiceCheck implementation uses a SQLServer database, the upgrade installer only recognizes a database schema name of "dbo." Therefore, if using a VoiceCheck SQL Server database with a different schema, move all database tables to the dbo schema before upgrading.

> IMPORTANT
> Honeywell strongly recommends backing up the database before performing a VoiceCheck upgrade.

## Standard Upgrade

When running the upgrade installer:

- The installer detects whether a VoiceCheck version is already installed and uses this information to determine if an upgrade is possible.
- To upgrade a VoiceCheck database while installing the VoiceCheck application to a new server, you must first install the version of the application that corresponds with the existing database. During the installation (See Running the Installation Program) , enter the database settings so that the installer recognizes it.

  With the legacy version fully installed, run the installer for the new version of the VoiceCheck application. It detects the existing database and upgrades the tables.

  When an original VoiceCheck implementation uses a SQLServer database, the upgrade installer only recognizes a database schema name of "dbo." Therefore, if using a VoiceCheck SQL Server database with a different schema, move all database tables to the dbo schema before upgrading.
- In a clustered environment, you must delete the Cluster Resource associated with the **VocollectWebApplicationsVoiceCheck** service prior to initiating the upgrade. After the upgrade is complete on all nodes, add the Cluster Resource again.

  Performing these steps will prevent application irregularities and failures because the Cluster Manager interferes with the upgrade process. During the upgrade, the installer stops the **VocollectWebApplicationsVoiceCheck** service then attempts to delete and recreate it. With a clustered service, however, the Cluster Manager attempts to restart the service causing Tomcat to restart; then it prevents the installer from deleting the service.

## Upgrading from a Standard Installation to a Clustered Environment

You may initially choose to perform a normal installation of VoiceCheck then decide after installing to migrate to a clustered environment. The process to complete this migration is described in this section.

If you want to use the same database as the original installation, uninstall VoiceCheck and opt to retain the database. An uninstall is only required if the original machine is intended to be part of the cluster. After the original application is uninstalled, install VoiceCheck to a clustered environment (see Installing into a Clustered Environment) and set VoiceCheck to use the existing database.

If you want to upgrade the database to a clustered database, uninstall the application and opt to retain the database. Follow the instructions provided by the database vendor (either Oracle or SQL Server) to upgrade the existing database to a clustered database. Then install VoiceCheck to a clustered environment (see Installing into a Clustered Environment). During this installation, point to the newly clustered VoiceCheck database.

## Upgrading from a Standard Installation to a Load Balanced Environment

You may initially choose to perform a normal installation of VoiceCheck then decide after installing to migrate to a load balanced environment. The process to complete this migration is described in this section. This process requires VoiceCheck 1.10 or later.

> NOTE
> The items below assume the default installation directory, C:\ProgramFiles\Vocollect\VoiceCheck. Modify as necessary for an installation in non-default directory.

### Step 1 - Prerequisite Activities

- Backup VoiceCheck files at C:\ProgramFiles\Vocollect\VoiceCheck\VoiceCheckFiles.
- Stop the VoiceCheck service.

### Step 2 - Modify Databases

Perform database changes by editing the voc_system_properties table as follows.

- Enable the load balance property.
- Set value='true' where systempropertyid=-27;.
- Update the shared folder path in the FILE_BASE_DIR property. Replace {sharedFolder} with the shared folder path.
- Set value={sharedFolder}/VoiceCheckFiles' where systempropertyid=-100;

### Step 3 - Configure Shared Storage

Make shared storage path changes as described below.

1. In the C:\Program Files\Vocollect\VoiceCheck\bin.folder, make the following changes:
    - Edit the cpau_test.bat file. On line 4 replace <C:\Program Files\Vocollect\VoiceCheck> with the shared folder path.
      Example: copy /y nul "<sharedFolderpath>\logs\confirmed.txt"
    - Edit the setEnv.bat file. On lines 49 and 52 of HeapDumpPath replace replace <C:\Program Files\Vocollect\VoiceCheck> with shared folder path.
      Example: HeapDumpPath=<sharedFolderpath>\logs
    - Edit the tomcatServiceInstall.bat file. On lines 68 and 69 of LogPath to replace replace <C:\Program Files\Vocollect\VoiceCheck> with shared folder path.
      Example: LogPath=\\<sharedFolderpath>\logs
2. Edit the C:\Program Files\Vocollect\VoiceCheck\conf\current\configProperties.json file and replace<C:\Program Files\Vocollect\VoiceCheck> with the shared folder path:
    - "03voiceCheckStorageDirectory":\\<sharedFolderpath>”
    - "01tomcatLogDirectory":\\<sharedFolderpath>\\logs”

3. Edit the C:\Program Files\Vocollect\VoiceCheck\tomcat\conf\logging.properties file (lines 11, 15, 19, and 23) and replace <C:\Program Files\Vocollect\VoiceCheck> with a shared fole path for the following items
    - 1catalina.org.apache.juli.FileHandler.directory = \\<sharedFolderpath>\\logs
    - 2localhost.org.apache.juli.FileHandler.directory = \\<sharedFolderpath>\\logs
    - 3manager.org.apache.juli.FileHandler.directory = \\<sharedFolderpath>\\logs
    - 4host-manager.org.apache.juli.FileHandler.directory = \\<sharedFolderpath>\\logs
4. Edit the C:\Program Files\Vocollect\VoiceCheck\tomcat\webapps\VoiceCheck\WEB-INF\classes\log.properties file and replace <C:\Program Files\Vocollect\VoiceCheck> with a shared folder path as below.
    - Example: system.log.directory=\\<sharedFolderpath>\\logs
5. Edit the C:\Program Files\Vocollect\VoiceCheck\tomcat\webapps\VoiceCheck\WEB-INF\classes\log4j2.xml file that contains applicationLogs property(line 8) and replace <C:\Program Files\Vocollect\VoiceCheck> with a shared folder path.} as below:
    - Example: <Property name="applicationLogs"> \\<sharedFolderpath>\logs </Property>

## Step 4 - Modify Primary Node

> **IMPORTANT**
> Perform these steps only for the primary node.

1. On the primary node, edit the C:\Program Files\Vocollect\VoiceCheck\tomcat\webapps\VoiceCheck\WEB-INF\classes\server.properties file and set the server.ld.primary.node value to true.
2. Copy the configProperties.json file from C:\Program Files\Vocollect\VoiceCheck\conf\current to the shared storage path and rename it as clusterproperties.json.
3. Add the value of "01clusterType" in the clusterProperties.json file as "loadbalanced".
4. Update the value of "01authMode" in the clusterProperties.json file as described below:
    - If SSO is enabled along with load balancing, set the value to "sso".
    - If SSO is not enabled along with load balancing, then set the value to "basic"

## Step 5 - Complete Upgrade

1. Copy all VoiceCheck files from the VoiceCheck nodes to a shared folder: {sgharedFolder}\VoiceChecklFiles
2. Start the VoiceCheck service on all the nodes.

# Post-Installation Steps

This section covers steps that must be or can be performed after installation, but before logging into the system or importing data into the system. Each step is described separately.

## Database Maintenance Plan

Honeywell recommends setting up regular database maintenance jobs to maintain optimal system performance.

- Schedule a database transaction log backup job to run. This should run regularly between full backups, typically once per day. For higher volume systems or if performance begins to degrade, schedule this job to run more frequently. It will not greatly impact performance of the system, but will improve it over a long duration of time.
- Rebuilding and reorganizing indexes regularly can increase performance in higher volume systems as the indexes on the tables may become fragmented. Schedule these jobs for SQL Server anywhere every 4 to 24 hours depending on your system. For Oracle, once a day should be sufficient

## Initial Database Connection Pool Settings

### Performance optimizations for installations supporting many devices

The connection pool for database connectivity can be adjusted, if necessary, in the **database.properties** file. The property and default value are:

```
Connection.maxPoolSize=20
```

Listed below are the recommended initial settings, which may be tuned as needed. Other factors may influence performance and require connection pool optimization, such as the number of client browsers that will be connected.

- For up to 1000 devices, maintain the default value of 20
- For 1001 to 1500 devices, set to 30
- For 1501 to 2000 devices, set to 40
- For 2001 to 2500 devices, set to 50
- For each additional 500 devices, add 10 connections

> IMPORTANT
> Warning: Increase the connection pool value only when absolutely necessary. Setting this value too high may cause database deadlocks.

## Apache Tomcat Performance Tuning

Depending on the number of device and browser connections expected, you may need to configure Tomcat.

In a text editor, open the server.xml file found in: <installation path>\tomcat\conf.

In the connector definitions (for HTTP and HTTPS) add or adjust the following properties.

- **maxThreads**: The number of actual worker threads should be in the range of 20% of total connections expected. The default is 150. If, for example, you expect a typical load of 1000 workers and 500 browsers, then set this property value to 20% of 1500, or 300.
- **acceptCount**: The number of threads that Tomcat will accept and hold until a worker thread is available. This value can be a large number close to total connections possible, but cannot exceed your machine's limitations in memory and threads allowed. Various operating systems are different; for example Windows 64-bit architecture allows a much larger threshold than Windows 32-bit systems.

Refer to Apache Tomcat documentation for other performance settings.

## Java Virtual Machine Settings

The default memory settings for the Tomcat application server Java Virtual Machine start at 256 MB and can grow up to 1024 MB. A setting of 1GB (1024 MB) is sufficient for most installations, but this will vary by the type and amount of data you intend to view unfiltered in your VoiceCheck system. To size this yourself, open the window in the application with the data you expect to view and check the **Mem Usage** on **Windows Task Manager**.

To change JVM settings in **Windows**, do the following:

1. Run the **VocollectWebApplicationsVoiceCheckw.exe** file in the **bin** folder of the **Tomcat** install under the **Vocollect** directory.
2. Click on the Java tab.
3. If using the internal transcription engine, add the following parameters in the Java Options input box.

   -XX:MaxPermSize=512m

   -XX:PermSize=256m
4. Change the Maximum Memory Pool setting to your desired value.

   1024 MB recommended for small load implementations

   2048 MB recommended for up to 2500 workers

   Add an extra 1024 MB for the internal transcription engine

5. change the Initial Memory Pool setting as needed.

   512 MB recommended for small load implementations

   1024 MB recommended for up to 2500 workers
6. Set Thread stack size. (1024 KB recommended)
7. Click OK to save the settings and close the window.
8. Restart the webservice.

# First System Log On

Default roles and users are installed with the application.

The roles are:

- **Administrator**: granted full access to all administrative and general features of the application
- **Read-only**: granted read-only access to features (not granted access to any features that modify the system)

The users are:

- admin
- vocollect

Log in for the first time with the admin user name and **admin** as the password. This user will give you the appropriate access rights to start setting up the application.

When SSO is not used, passwords must be changed after the first log in, and must adhere to the following password complexity requirements.

A minimum of 8 characters, including:

- 1 upper-case letter
- 1 lower-case letter
- 1 numeral or special character

New passwords must not match any of the last three user passwords.

Users will be locked out after three invalid login attempts and must wait 15 minutes to try again or contact their system administrator to unlock their account.

The **vocollect** user (password: voiceworks) is set up so that Honeywell field personnel can log into the application. This user can be deleted once a customer's system is completely set up. Honeywell recommends that the customer keeps it enabled until the system is fully implemented and the customer no longer needs the support from a Honeywell field representative.

Once logged into the application as admin, select **Administration** > **Users** > **Edit Your Profile** and change the password for the admin user to secure this login. On subsequent logins, use the new password for the admin user.

# Creating Additional Sites for Multi-Site Implementations

In order to support multiple sites, you must perform several steps in VoiceConsole and in VoiceCheck for the sites and their respective tasks, task packages, device profiles, users, and operators.

## Creating Multiple Sites in VoiceConsole

See VoiceConsole documentation for more information.

### 1. Create site-specific task files for each site

Enter specific site settings for the Honeywell Voice Maintenance & Inspection Solution voice application via the VoiceConsole interface. See *VoiceConsole Online Help* for detailed steps.

### 2. Create a new site in VoiceConsole

HOW TO:

In the Administration section of the VoiceConsole GUI, navigate to **Sites** and click the **Create new site** action link.

### 3. Create a site-specific user for the new site

You need to create a site-specific administrator who can only view the site to which assigned.

HOW TO:

In the Administration section of the GUI, navigate to **Users** and click the **Create new user** action link.

Select **Administrator** in the **Roles** field.

Select the one site to granted access in the **Sites** field.

### 4. Migrate operators from an existing VoiceConsole database

If implementing a new system, you may not need to perform the steps in this section. The steps below show how to migrate operator templates from an existing VoiceConsole implementation.

HOW TO:

In the **Operator Management** tab , navigate to **Operators**, select the operators you want to move, and click the **Move Operators** > **Move/Add selected operators to a site** action link.

From the **Destination Site** drop-down list, select the new site.

Select **Move the Operator to the selected site**

Complete the move, then confirm the move by selecting the new site from the **Site Information** drop-down list.

> NOTE
> You may need to verify that the license supports any operators that are added.

### 5. Import a task to the new site

HOW TO:

In the **Device Management** tab, navigate to **Tasks** and click the **Import Task** action link.

Complete all relevant fields, then select the site(s) at which this task will be available.

### 6. Create a task package for the new site

HOW TO:

In the **Device Management** tab, navigate to **Task Packages** and click the **Create new task package** action link.

> NOTE
> Every task package requires that the advanced settings be specified for each new site. Honeywell recommends that these settings be saved in a separate text document and then pasted in the advanced settings box at the time of creating the new task package.

### 7. Create a device profile for the new site

HOW TO:

In the **Device Management** tab, navigate to **Device Profiles** and click the **Create new device profile** action link.

# Creating Multiple Sites in VoiceCheck

For multiple-site installations of VoiceCheck, you must create sites in addition to the singular default site.

## 1. Creating a new site in VoiceCheck

In the Administration section of the VoiceCheck GUI, navigate to **Sites** and click the **Create new site** action link.

## 2. Creating a site-specific user for the new site

In the Administration section of the GUI, navigate to **Users** and click the **Create new user** action link.

Select **Administrator** in the **Roles** field.

Select the one site to which the user is granted access in the **Sites** field.

Select **Enabled** status.

> **TIP**
> For other users to have access to this site, will must go back to the original site and edit the users to allows access to view or use this new site.

# Setting Up Application Security

Roles and users form the basis of application access control. The roles define privileges, and users can only perform the functions allowed by their assigned roles.

Default roles and users are installed with the application.

The roles are:

- **Administrator**: granted full access to all administrative and general features of the application
- **Read-only**: granted read-only access to features (not granted access to any features that modify the system)

The users are:

- admin
- vocollect

## Create Roles

**Roles** define what a user is allowed to do in the application. Use the default roles or create roles based on group and provide access to the users.

**HOW TO**:

In the Administration section of the GUI, navigate to **Roles** and click the **Create new role** action link.

For each role, grant access to specific features by checking them.

When setting up roles, consider the following:

- If you grant a role permission to perform an action, such as Create User, make sure you grant that role permission to view the page where that action is accessed (in this case, you would grant the user permission to View Users).
- Determine roles based on groups of users that perform the same functions and name roles according to those user groups.

  For example, shift managers may perform the same functions. Create a role called ShiftManagers and grant the appropriate rights to that role. Then, it is simple to determine which role to grant to users who are shift managers. In the future, this method will make it

easy to determine which role to grant a user who has been newly hired for or promoted to a shift manager position.

> **NOTE**
> If you add a new role or change a role's privileges in a clustered implementation, you must reboot all the application servers in a cluster for that information to be updated in all the systems.

# Operators versus Users

In VoiceCheck, operator records and user accounts have different purposes.

- Operators are the technicians using Talkman devices to enter inspection results by speaking responses to voice prompts.
- Users are the technicians and administrators who log into the VoiceCheck graphical user interface (GUI) via a PC browser.

## Creating Operators

When you create an operator in VoiceCheck, you also create a user account automatically. These two accounts are linked because the technicians who perform voice-directed inspection assignments must also be able to log on to the VoiceCheck application to review and submit completed steps.

Create an operator and user from the **VoiceCheck > Operators** page.

> **NOTE**
> Operator IDs must be unique across VoiceCheck sites and must match operator IDs configured in VoiceConsole.

## Creating Users

Set up a user account without an associated operator from the **Administration > Users** page. Create users only for administrators or managers who manage operators using the VoiceCheck GUI but do not use Talkman devices for voice entry.

# Creating Operators and Users

Every technician performing inspection assignments must have an associated operator in VoiceCheck that matches an operator defined in VoiceConsole. Technicians must ***also*** have a user account for logging into the VoiceCheck application.

Setup both operator record and user account for each technician at the same time.

**HOW TO**:

In the VoiceCheck tab of the GUI, navigate to **Operators** and click the **Create new operator** action link.

Complete both operator and user fields on the Create Operator page.

### Create Users Only

For application users who do not sign onto Talkman devices, create a user account that is not linked to an operator record.

Each application GUI **user** must have a unique username and must be granted at least one role.

HOW TO:

In the Administration section of the GUI, navigate to **Users** and click the **Create new user** action link.

Create a separate user record for all non-operators who will use the application. When a user configures the application by adding or removing columns, applying filters, etc., these changes are saved for that user.

Refer to the VoiceCheck Online Help for more information about creating or editing roles and users.

### Create a Web Services User

If the assignment data imports from the host system, create a user for the host system to access VoiceCheck.

Assign the web services user a role that grants the Execute Web Services permission.

# Import and Export Operators/Users

Use the Import and Export Operators pages to manage both device operators and application users.

## Import

> NOTE
> These instructions assume an operators.zip file has been created with the Export function.

1. Navigate to **Inspection > Operators** page.
2. Click **Manage Operators > Import Operators**.
3. Makes sure "Import Operators is displayed in the **Operator ID/User Name** pull down.
4. Drag and drop an operators.zip file or browse to select the operators.zip file by clicking the **Upload** button.

### Import Criteria

A notification is displayed for any import issue. Various scenarios are described below:

- If the Operator ID/User Name already exists in the destination server, the operator is not imported. However, this does not prevent other operators in the operator.zip file from being imported.
- If the operator.zip file includes operator details, but the templates are for another user, the import is rejected.
- If an operator is associated to a single site and that site does not exist on the destination server, the operator is not imported
- If an operator is associated to multiple sites and not all those sites exist in the destination server, the operator is only imported into the existing sites.
- If an operator is associated to a role which does not exist on the destination server, the operator is imported and associated to the Read-only role.
- If an operator is associated to multiple roles and one of those roles does not exist in the destination server, the operator is only associated with the roles that exist.

> IMPORTANT
> After an operator is imported successfully to the destination server, logon to the server with that user and update the password. **Force Change Password** is enabled by default when importing operators.
> However when SSO is used, the forced password change does not occur.

## Export

1. Navigate to **Inspection > Operators** page.
2. Select one or more operators.
3. Click **Manage Operators > Export Selected Operators**. If no operators were selected, this link is not available.
4. An operators.zip file is created.

## Setting Up User Authentication

VoiceCheck can be set up to authenticate users who are signing into the system against a directory server such as LDAP or Active Directory.

1. Sign into **VoiceCheck**.
2. In the **Administration** tab, navigate to **System Configuration**.
3. Click the **Edit System Configuration** action link.

4. Select the **Authenticate users against directory server** option to enable users to log into the application using their directory server password. When selected, the following fields are displayed to configure associated parameters:

   **Host**: Enter the hostname or IP address of the directory server.

   **Port**: Enter the port on which the directory server is listening for connections.

   **Search User Distinguished Name**: Enter the username (name of the user object and its container location within the directory) of a trusted user who has search permission on the directory server. This is not required because many LDAP servers support anonymous directory server binding.

   **Search Base**: Enter the location within the directory server to begin a user search.

   **Searchable Attribute**: Enter the attribute on the directory server that maps to the username of a user entered in the application. This may be uid, sn, or another attribute, depending on the directory server setup.
5. Once this information is specified, enter a username in the **Test User Name** field and click **Test Directory Server Connection Information** to test if the system is able to validate a user's username and password on the directory server.
6. Click **Save Changes**.

## Setting Up the Export Web Service

VoiceCheck uses a host system web service to post inspection assignment results. You must set the URL and, if required, turn on authentication in the user interface so that VoiceCheck can transmit data successfully.

**HOW TO**:

In the Administration section of the GUI, navigate to **System Configuration** and click the **Edit System Configuration** action link.

Specify the connection parameters:

- **Service Endpoint**: Enter the URL for the web service endpoint for services provided by the host system. This is a required field.
- **Client Type**: Choose REST or SOAP web services for all data transmission between VoiceCheck to the host system
- **Requires Authentication**: Check this option if access to the service endpoint requires a username and password, then supply the credentials in the appropriate fields.
- **Export Settings**

  **Allow Auto Export**: Check the box to post results to the host system as soon as an assignment is completed. Uncheck the box to require the user to submit assignments manually.

> **NOTE**
> Click **Manage exports** from the VoiceCheck tab to stop or start exporting. Exporting starts upon server reboot.

**Export mode**: Choose PUSH or PULL from the drop-down box. PUSH assignment exports send data to the host system when assignment data is ready. PULL assignment exports allow the host system to call the server to get the data. There are three REST web services available to PULL data from assignment exports, Data Transmission.

# Setting Up a Transcription Server

## System Requirements

Honeywell recommends the following hardware and operating system requirements for systems to run a transcription server.

- 64-bit Windows Server 2012 or 64-bit Windows 7
- One 2.5Ghz CPU core
- 12GB RAM for the first transcription server instance plus an additional 4GB RAM for each additional transcription server instance

## Initial Setup

1. Download and install the latest version of Java 8 JRE using the default setup prompts.
2. Download and install the Latest Tomcat 7. Allow the installer to create a Windows service. The Tomcat installation directory is `CATALINA_HOME`.
3. Unzip `TranscriptionServerReleaseR1.6.zip` to the location of choice. This creates a `\transcription_server-1.6` folder. Refer to this folder as `TS_HOME`.

> **TIP**
> Honeywell recommends using the C:\ drive to save configuration time.

4. Add %TS_HOME%\TranscriptionServer\WEB-INF\classes to the system PATH environment variable.
5. Run the following installers included in the zip package:
    - vcredist_x64.exe – C++ runtime
    - w_ccompxe_redist_intel64_2015.4.221.msi

## Transcription Models

A transcription server "model" refers to the combination of language and domain that a transcription server uses to transcribe the audio input. For example:

- You want to transcribe the recorded audio from US English news broadcast. The model would be US English for the language and News Broadcast for the domain.
- You want to transcribe the recorded audio from Latin Spanish Trucking. The model would be Latin Spanish for the language and Trucking for the domain.

### Industry Language Models

The following industry language models are currently available:

| Domain | Language |
|---|---|
| Generic | English (US) |
| Generic | French Canadian |
| Generic | German |
| Generic | Latin American Spanish |
| Aerospace | English (US) |
| Trucking | English (US) |
| Trucking | French Canadian |
| Trucking | Latin American Spanish |

## Configure the Transcription Server

You must configure a separate instance of the Transcription Server for each model that you want to support. Configure multiple instances of the server for a single model if you wish to increase the transcription throughput for that language. Complete the following steps to configure a model instance.

1. Create a context.xml file in %CATALINA_HOME%\conf\Catalina\localhost. An example context.xml file for each language model is included in the distribution. If only a single transcription server instance is required, copy the example file as is.
   Otherwise, copy and rename the file. For example, copy enUS_Generic_1.6_m2_1.xml to enUS_Generic_1.6_m2_1.xml and enUS_Generic_1.6_m2_2.xml to configure multiple instances.

   > IMPORTANT
   > Verify that the server meets the RAM requirement to run the requested number of instances.

2. If you did not unzip to C:\ in step 3 above, edit each file and change the docBase, modelFolder, uDataFolder, and waveFile attributes to TS_HOME. For example, change docBase="C:\TranscriptionServerReleaseR1.6"to docBase="<your TS_HOME location>"
3. Restart the Tomcat service.
4. Verify that each instance is responding at the specified URL.

   **Example**: Type http://yourhostname/enUS_Generic_1.6_m1 into the browser, with enUS_Generic_1.6_m2being the name of the xml file you created in step 1. This assumes that you configured Tomcat to listen on port 80, which is the default. Otherwise, include the port chosen in the URL. The response from the server should look something like this:

```
<transcription>
<id>0</id>
<creationTimestamp>2016-10-13T14:57:10.519Z</creationTimestamp>
</transcription>
```

Next, configure the VoiceCheck server to connect to this Transcription Server as explained in Setting Up a Transcription Service Endpoint.

## Setting Up a Transcription Service Endpoint

VoiceCheck includes a built-in transcription engine for transcribing VoiceNotes and memos. This engine supports only a basic, generic English vocabulary. The external server can support either English, German, French Canadian, or Spanish language transcriptions. Honeywell recommends you use an external transcription server with customizations for inspections that employ industry-specific vocabulary.

Separate transcription services may be available for VoiceCheck. Ask your Honeywell representative for information.

If you install a custom transcription service on one or more servers, you must configure transcription service endpoint(s) so that VoiceCheck can properly submit and receive VoiceNotes via a REST web service.

**HOW TO**:

In the Administration section of the GUI, navigate to **System Configuration** and click the **Edit System Configuration** action link.

In the Transcription Service Settings, specify the service endpoint addresses.

- Transcription Service Endpoints: Enter each URL for the web service endpoint on a separate line. The web service connection may be secured (HTTPS) or not (HTTP).

To accommodate support of multiple languages and redirection based on language code, specify a locale in the URL and the VoiceCheck system will replace the token in the URL with the appropriate locale. If the token is not specified in the URL, all notes will go to that URL as before.

**Example**:

http://TranscriptionServer:8089/transcription/{locale}_Generic_1.6_m1

or

http://TranscriptionServer:8089/{locale}/transcription

**IMPORTANT**
To accommodate multiple languages, the transcription service for each language must either be running on the same host under different URLs, or the host names must contain the language code.

**NOTE**
If a VoiceNote or memo is being transcribed when a transcription server experiences a failure, that transcription will not complete until the server is restored. In an implementation with multiple transcription servers, the affected transcription does not fail over to another node.

## Setting Up Job Schedules

Schedules define when system processes should run. Define a different schedule for each process. So, you may specify for one process to happen every five minutes, while another process may run once daily or weekly.

If several of these operations run simultaneously, the system-wide performance may diminish. You should consider scheduling some of these jobs (for example, the VoiceCheck data purge and external database maintenance jobs) to run during off hours or non-peak times.

Refer to the VoiceCheck Online Help for more detail about setting job schedules.

## Setting Up Email Notifications

Set up VoiceCheck to email critical notifications to specific users.

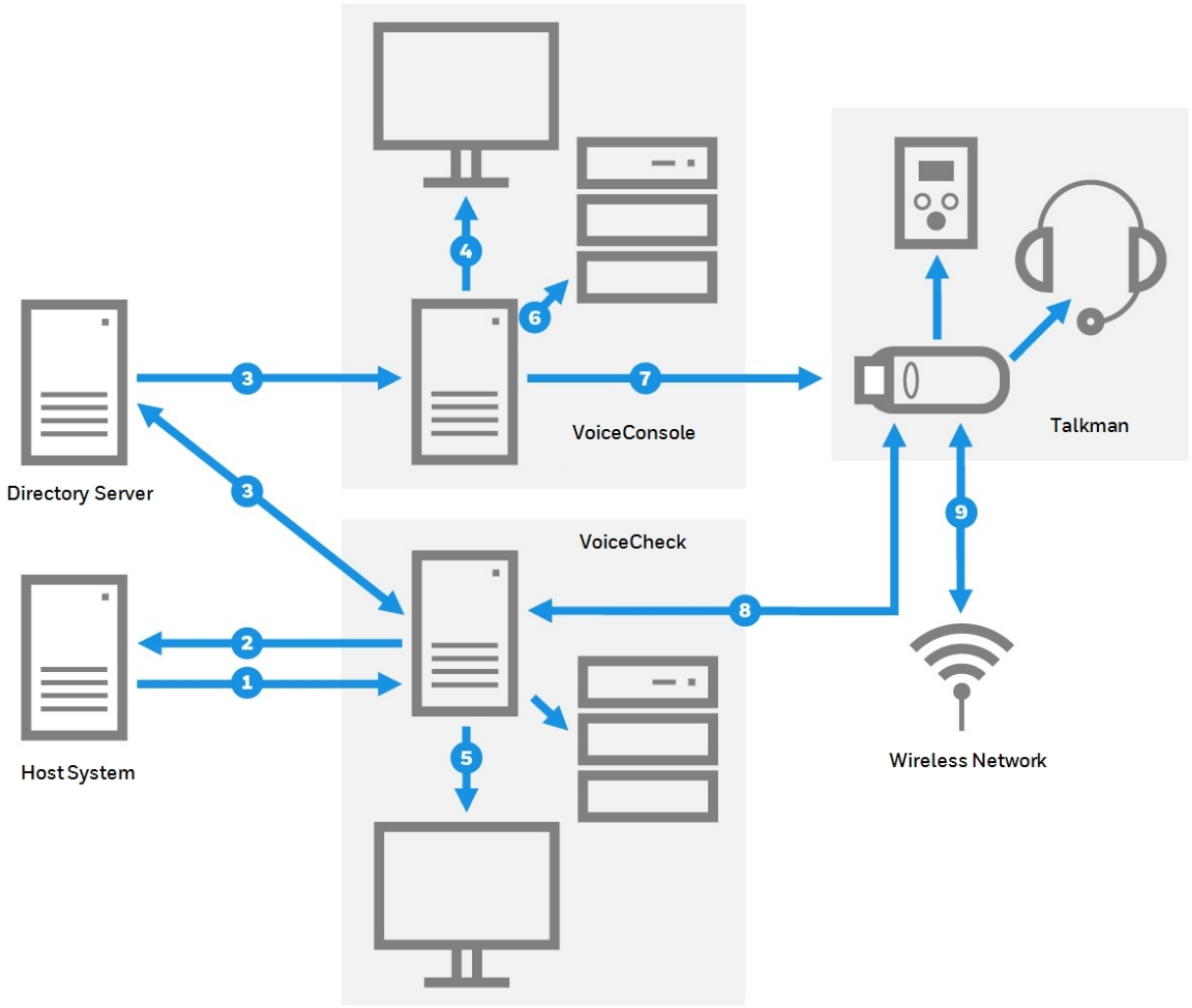
**HOW TO**:

1. Assign all relevant users to a role that grants the ability to view notifications.
2. Add email addresses to the appropriate user accounts.
3. In the Administration section of the GUI, navigate to **System Configuration** and click the **Edit System Configuration** action link.
4. Enter the outgoing SMTP host information.
5. If the host requires authentication, enter the user name and password.

# Security Considerations

VoiceCheck provides support for several methods of securing data communication. The following section shows how to configure the solution to use secure methods of transmission.

# Options for Securing the Implementation




**Voice Inspection Solution Security Options**

1. **Assignment import** – an inbound web service transmission from the host system to VoiceCheck. Secure this data by configuring a server certificate on the VoiceCheck server and using an HTTPS inbound URL.
2. **Results export** – an outbound web service transmission from VoiceCheck to the host system. Secure this data by configuring a server certificate on the host system and enabling HTTPS authentication in the **Post Assignment Results Web Service Settings** on the **System Configuration** page of the VoiceCheck GUI.

**Results import** – an inbound web service transmission from the host system toVoiceCheck. Secure this data by configuring a server certificate on the VoiceCheck server and using an HTTPS inbound URL.

3. **User authentication** – an option to use an existing directory server to authenticate VoiceConsole and VoiceCheck users. Set this option on the **System Configuration** pages of VoiceConsole and/or VoiceCheck.
4. **VoiceConsole web pages** – the GUI pages served from Apache Tomcat to the client browser. Secure the web pages by selecting the **Enable HTTPS Support** option during the VoiceConsole installation and entering the certificate keystore information in the Tomcat configuration file.
5. **VoiceCheck web pages** – the GUI pages served from Apache Tomcat to the client browser. Secure the web pages by selecting the **Enable HTTPS Support** option and entering the certificate keystore information during the VoiceCheck installation.
6. **VoiceConsole Embedded Database** – a ***remote*** connection to an embedded database can be configured to use SSL (Secure Socket Layer) encryption. Secure this remote connection by installing a certificate and modifying a number of properties in the Apache Tomcat database.properties file. This option is not available for Microsoft SQL Server or Oracle databases and is not necessary for databases deployed on the same physical machine as the application server. See the VoiceConsole Implementation Guide for details.
7. **VoiceConsole device communications** – wireless communications secured by WEP, WPA or WPA2 protocols, and data transmission from Talkman devices to VoiceConsole secured by HTTPS. Set both security options in **Device Profiles** in VoiceConsole.
8. **VoiceCheck device communications** – data transmission between Talkman devices and VoiceCheck secured by Transport Layer Security (TLS/SSL) encryption. Install a certificate on the VoiceCheck application server, then select this option when creating a **Task Package** in VoiceConsole.**Wireless network authentication** – an option to deploy Extensible Authentication Protocol (EAP) to define data message formats for secure wireless communications among Honeywell solution components. Configure EAP on a site-wide basis by modifying the site in VoiceConsole.

Other communications shown in the graphic have security options that are not controlled within VoiceCheck. The VoiceCheck database should be deployed on the same physical network segment as the VoiceCheck application server, so wired network security can protect this data transmission as well as data sent between VoiceConsole and its local database. The Talkman device connects to a display device using HTTP and to SRX3 headset via Bluetooth v5.

## Encryption and Authentication in VoiceConsole

VoiceConsole offers various options for securing the user interface, network communications, and device communications. Honeywell recommends combining encryption with a protocol that supports authentication methods to keep the networks secure.

- To secure web server communications, enable HTTPS during the installation, then obtain and install a certificate.

- To secure communication between VoiceConsole and Talkman devices, enable HTTPS in the device profile.
- To authenticate device connectivity on a wireless network, enable Extensible Authentication Protocol (EAP).
- To secure a wireless network with encryption, enable Wired Equivalent Privacy (WEP) or Wi-Fi Protected Access (WPA/PSK or WPA2/PSK).
- To verify users by authenticating logons against a directory service, enable LDAP support in System Configuration.

See the VoiceConsole Implementation Guide for more information.

## Encryption and Authentication in VoiceCheck

VoiceCheck has secure options for data transmission between the application server and the user interface, the Talkman devices, and the host system.

- To secure web server communications, obtain and install a certificate, then enable HTTPS during the installation.
- To secure device communications, enable TLS/SSL in the task package.
- To secure access to a SOAP or REST web service on the host system for data exports, enable HTTPS basic authentication in System Configuration. The password is encrypted and stored in the VoiceCheck database.
- To verify users by authenticating logons against a directory service, enable LDAP support in System Configuration.

## HTTPS and TLS/SSL

Hypertext Transfer Protocol Secure (HTTPS) is a networking protocol that secures web- or browser-based transactions over a network that is not secure. All HTTPS user connections are encrypted with digital certificates which tell the browser to use encryption to protect data transmissions.

This protection is effective only if the browser verifies a certificate as valid and issued by a trusted authority. Therefore, you must ensure that server certificates are installed correctly and the browsers used for VoiceConsole and VoiceCheck administration are configured to accept the certificates.

Transport Layer Security (TLS), commonly referred to as Secure Sockets Layer (SSL), is an encryption protocol that uses a public key infrastructure to secure data communications between a server and client. Like HTTPS, TLS/SSL requires that a certificate is installed on the server and a specific network port for secured transmissions to Talkman devices or a remote VoiceConsole embedded database.

If you are configuring the implementation for any of the HTTPS or SSL options, the following components are needed. See HTTPS Certificate Installation for more information.

- Java keytool utility to create a certificate request
- A signed certificate, that includes all intermediate certificates if any exist

### Supported Authorities

Honeywell software supports the following certificate signing authorities.

- COMODO Certification Authority
- Cybertrust Educational CA
- DigiCert Global CA
- DigiCert High Assurance CA-3
- Entrust Certification Authority - L1B
- EssentialSSL CA
- GlobalSign Domain Validation CA
- GlobalSign Organization Validation CA
- Go Daddy Secure Certification Authority
- Microsoft Internet Authority
- Microsoft Secure Server Authority
- Network Solutions Certificate Authority
- Starfield Secure Certification Authority
- Thawte SGC CA
- VeriSign Class 3 Extended Validation SSL CA
- VeriSign Class 3 Extended Validation SSL SGC CA
- VeriSign Class 3 Secure Server CA
- VeriSign Class 3 Secure Server CA - G2
- www.verisign.com/CPS Incorp.by Ref. LIABILITY LTD.(c)97 VeriSign

## Failover and Recovery

In the event that VoiceCheck or another component of the implementation becomes unresponsive or shuts down unexpectedly, you may need to initiate data and application recovery procedures. A failover configuration could help prevent periods of system unavailability or data loss.

### Recovery Steps with no Automated Failover

If VoiceCheck becomes unresponsive, stop and restart the VoiceCheck service (or the Apache Tomcat server, also listed in services).

If this is unsuccessful, shut down and restart the machine hosting the server and verify that the VoiceCheck service successfully started. You should also verify that the database is up and available.

> **WARNING**
> If your VoiceCheck database service goes down or requires a restart, you ***must*** also stop the VoiceCheck application service. Start the application service again only after the database is fully up and running.

## Preventative Steps

### Backing Up, Restoring, and Maintaining the Database

VoiceCheck does not come with any built-in ability to back up the database. Honeywell strongly recommends that you schedule regular database backups. If a disaster occurs in which the database is corrupted or no longer available, restore a previous backup to use.

> **WARNING**
> If regular backups are not performed, the transaction log file will continue to grow and may eventually cause application problems.

## Connecting VoiceCheck to a Different Database

If you need to bring up a redundant database, ensure that all database information for the redundant database is the same as the original database. Then, perform the following steps to associate VoiceCheck with the new database.

1. On the server machine go to *<TOMCAT HOME>\webapps\VoiceCheck\classes*.
2. Open the file **database.properties** using a text editor.
3. Update the URL information in the following properties with the new host name of the redundant database.

   ```
   hibernate.connection.url
   hibernate.connection.username
   hibernate.connection.password
   archive.hibernate.connection.url
   archive.hibernate.connection.username
   archive.hibernate.connection.password
   ```

4. Save the file.
5. Restart Apache Tomcat server.

> **TIP**
> The archive properties are not currently used, but you should update the URL information to maintain consistency.

IMPORTANT
The current passwords will be encrypted. Simply type the new passwords in plain text, and they will automatically be encrypted when the Tomcat server and VoiceCheck are restarted.

### Using a Secondary VoiceConsole Server

If your production VoiceConsole server becomes unavailable, you might have to switch temporarily to use a secondary or development implementation of VoiceConsole until the production machine is restored. As with VoiceCheck, create a failover configuration for VoiceConsole. Install an instance of the VoiceConsole server on multiple machines that communicate with the same database. See the VoiceConsole Implementation Guide for more information.

In any scenario where a new VoiceConsole server is brought online, you have to load a new configuration file (device profile) to each Talkman A730x device so it can connect and communicate with a different instance of VoiceConsole. To deploy new configurations, load it on a single device via USB cable, then use TouchConfig to deploy the configuration to the rest of the devices. See VoiceConsole Online Help for information on loading profile through a cable.

### Reporting a Disaster

Be sure to report any incidents where your VoiceCheck application becomes unresponsive or shuts down unexpectedly. Send your logs to Honeywell. Retrieve them from the user interface on the **Administration > Logs** page, and by default, the log files are stored in the following directory:

- *<InstallationDirectory>\logs*

# Uninstalling VoiceCheck

When you uninstall the system, you have the option to either keep or delete the data stored in the application.

The uninstall procedures below are applicable to systems that are installed either by the installation user interface or via the silent install process.

### Uninstalling a Non-Clustered Installation

For Windows systems where *only* VoiceCheck is installed:

1. Open the Windows **Start** menu.
2. Select **Settings > Control Panel**.
3. Double-click **Add or Remove Programs**.
4. Select Vocollect Enterprise Products in the list.
5. The uninstall application will start. Click **Uninstall**.

Or, for windows systems where *both* VoiceCheckand VoiceConsole are installed, run the uninstall application as an administrator. Find the application here:

<InstallDirectory>/Uninstaller/uninstall.bat

> CAUTION
> Do ***not*** run any uninstaller executable file (.exe) that may appear in the same or similar location. This file is only a part of the uninstall program and will not remove the application.

For a VoiceConsole Linux installation, execute the uninstall application found here:

<InstallDirectory>/Uninstaller/uninstall.sh

You may have to manually remove any desktop shortcuts to VoiceCheck after uninstalling the application.

### Uninstalling in a Clustered Environment

When you uninstall the application in a clustered or load-balanced environment, you must uninstall each node individually. Do not remove data until the last node is uninstalled. When you are prompted to remove data from the database, any additional nodes onto which VoiceCheck has been installed will no longer function correctly.

If you are uninstalling an instance of VoiceCheck that was installed in a clustered server environment, the uninstaller will not remove files from the shared files directory. To completely remove VoiceCheck, you must manually remove all files from the shared directory. The shared directory will contain:

- Some properties files that contain information that each installation node uses.
- Indexing (search-related index files)
- Log directory (optional)

# Solution Implementation Checklist

| Infrastructure | |
|---|---|
| ☐ | Acquire server, workstation hardware |
| ☐ | Acquire Database software |
| ☐ | Order Talkman A700x series or Android devices |
| ☐ | Order SRX3 Wireless Headsets |
| ☐ | Order chargers |

| Infrastructure | |
|---|---|
| ☐ | Determine architecture model: decentralized/centralized, multi-server, multi-site |
| ☐ | Determine number of servers, server specifications |
| ☐ | Determine clustered server configuration if necessary |
| ☐ | Prepare network configuration and ports, network specifications |
| ☐ | Determine server locations, physical security |
| ☐ | Determine workstation locations |

| VoiceConsole and Devices | |
|---|---|
| ☐ | Plan security options |
| ☐ | Obtain and install HTTPS certificate if needed |
| ☐ | Create VoiceConsole database |
| ☐ | Install VoiceConsole |
| ☐ | Import license file |
| ☐ | Create sites |
| ☐ | Create roles, users, operators |
| ☐ | Configure wireless security, authentication if needed |
| ☐ | Configure email notifications if needed |
| ☐ | Create device profile |
| ☐ | Import task |
| ☐ | Create task package |
| ☐ | Configure Talkman devices - device profile, task package |

| VoiceConsole and Devices | |
|---|---|
| ☐ | Configure HTTPS certificate information in Tomcat if needed |
| ☐ | Hold technician training with paired devices, headsets |

| VoiceCheck | |
|---|---|
| ☐ | Plan security options |
| ☐ | Install HTTPS certificate if needed |
| ☐ | Create VoiceCheck database |
| ☐ | Install VoiceCheck |
| ☐ | Create sites |
| ☐ | Create roles |
| ☐ | Create operators/users |
| ☐ | Configure authentication if needed |
| ☐ | Configure export web service connection |
| ☐ | Configure transcription service endpoints |
| ☐ | Set up job schedules |
| ☐ | Configure email notifications if needed |
| ☐ | Create VoiceForm |
| ☐ | Test web services integration between VoiceCheck and the host system |

# Cloud Hosting

Honeywell officially supports running VoiceCheck in a Cloud environment. The Honeywell testing environment is the Microsoft Azure platform for Cloud hosting.

IMPORTANT
Other environments can be used so long as it meets the expected requirements. Honeywell cannot account for all variables and unknowns with other Cloud environments, but this a list of best practices. Should an issue be encountered due to these unknowns, Honeywell will provide best effort support to determine if the problem relates to our solution or the environment and help to pin point the cause.

For more information on Azure, refer to the Azure documentation.

# Set up the Cloud Environment

## Machine Requirements

When planning a Cloud installation, Honeywell recommends following the server requirements for local hosting with an additional margin to allow for Cloud latency. Consult with Technical Support or Professional Services for further questions regarding Cloud system specifications.

## Sample Configuration

The following example is provided for an operation which might see 150-600 operator shift start size.

- Quad Core CPU
- Minimum 16GB RAM
- Minimum 60 GB storage space
- Microsoft Windows Server 2019 OS
- Database
    - Microsoft SQL Server 2019 database has been tested. The database is installed on a separate server and is not included in the machine requirements above.

## Ports

The following ports must be opened by the Network/Cloud Management team:

- 9090 bi-directional
- 9091 bi-directional
- 9443 bi-directional
- 21050 outbound
- 9070 bi-directional
- 9071 bi-directional

More information on these ports can be found here.

### General Information

- Honeywell does not recommend leaving VoiceCheck as an public-facing Internet accessible application.
- Talkman devices cannot be configured to directly utilize a VPN connection.
- File transfers, may take longer in a cloud environment than in a local installation.

### Contact Support Regarding Known Issues

Contact Technical Support for information regarding the following known issues.

- Azure high latency storage block issues with log files
- An Azure SQL managed database instance that is not supported

# Cloud Maintenance and Security

This page describes the post requisition steps for hosting VoiceCheck on the cloud.

### Security Considerations

The password policy for VoiceCheck on the cloud is the same as the policy for local installation.

> IMPORTANT
> LDAP authentication cannot be used unless you have a public Directory Server to allow authentication from Azure.

## Network Configuration

The VoiceConsole server and its database and the VoiceCheck server and its database communicate constantly and should be installed with the fastest possible network connections between them.

Honeywell recommends that you install the servers and the databases on the same local network subnet.

## Network Protocols and Ports

VoiceConsole uses the following protocols.

- Internet Control Message Protocol (ICMP)
- Hypertext Transfer Protocol (HTTP)
- Hypertext Transfer Protocol with Secure Sockets Layer (HTTPS)

VoiceCheck uses the following protocols.

- Hypertext Transfer Protocol (HTTP)
- Hypertext Transfer Protocol with Secure Sockets Layer (HTTPS)
- Internet Protocol Suite (TCP/IP)
- Simple Mail Transport Protocol (SMTP)

VoiceConsole and VoiceCheck use the following ports by default. If these ports are not available, the next available ports in sequence are used. An advanced Apache Tomcat user can change the Tomcat-related ports after installation if necessary.

## VoiceCheck

| Port | Connection | Process | Comments |
|---|---|---|---|
| 9070 | HTTP | Apache Tomcat Service | Used for proper startup and shutdown. |
| 9071 | HTTP | Apache Tomcat Service | If the standard port 9070 is not available, VoiceCheck looks for and uses the next available port. |
| 9445 | HTTPS | Apache Tomcat Service | Used for startup and shutdown in an SSL-secured environment. |
| 9008 | TCP/IP | Shutdown listener | |
| 9012 | TCP | AJP | AJP is a standard component of Apache Tomcat. It is a connector between Tomcat and its servlet container. It forwards the requests received from the browser to the servlet container. VoiceCheck uses it in its default configuration. |

## VoiceConsole

| Port | Connection | Process | Comments |
|---|---|---|---|
| 9090 | HTTP | Apache Tomcat Service | Used for proper startup and shutdown. |
| 9091 | HTTP | Apache Tomcat Comet API | The Comet API is used for asynchronous responses. |
| 9443 | HTTPS | Apache Tomcat Service | For inbound, browser-only, encryption. |
| 9006 | TCP/IP | Shutdown listener | |
| 9010 | TCP | AJP | AJP is a standard component of Apache Tomcat. It is a connector between Tomcat and its servlet container. It forwards the requests received from the browser to the servlet container. VoiceConsole uses it in its default configuration. |

# VoiceCheck Upgrades

The VoiceCheck installation program can be used to perform a VoiceCheck upgrade as well. Before upgrading your existing version of VoiceCheck to a new version of the product, consider the following guidance.

## Silent Upgrades

> IMPORTANT
> Before performing a silent upgrade to VoiceCheck 1.11, review Silent Installation.

## General Guidance

### Backing Up and Re-creating Data

- Back up your existing database before upgrading VoiceCheck to reduce the risk of data loss.
- Preserve any customizations created on your existing system before beginning the upgrade to the new system. After the upgrade, you will need to restore these customizations.

### Database Upgrades

- Upgrade from one database platform to another are not supported..
- The upgrade installer cannot be used to upgrade from one version of the database server to another. You should contact the database vendor.
- When an original VoiceCheck implementation uses a SQLServer database, the upgrade installer only recognizes a database schema name of "dbo." Therefore, if using a VoiceCheck SQL Server database with a different schema, move all database tables to the dbo schema before upgrading.

> IMPORTANT
> Honeywell strongly recommends backing up the database before performing a VoiceCheck upgrade.

## Standard Upgrade

When running the upgrade installer:

- The installer detects whether a VoiceCheck version is already installed and uses this information to determine if an upgrade is possible.
- To upgrade a VoiceCheck database while installing the VoiceCheck application to a new server, you must first install the version of the application that corresponds with the

existing database. During the installation (See Running the Installation Program) , enter the database settings so that the installer recognizes it.

With the legacy version fully installed, run the installer for the new version of the VoiceCheck application. It detects the existing database and upgrades the tables.

When an original VoiceCheck implementation uses a SQLServer database, the upgrade installer only recognizes a database schema name of "dbo." Therefore, if using a VoiceCheck SQL Server database with a different schema, move all database tables to the dbo schema before upgrading.

- In a clustered environment, you must delete the Cluster Resource associated with the **VocollectWebApplicationsVoiceCheck** service prior to initiating the upgrade. After the upgrade is complete on all nodes, add the Cluster Resource again.

  Performing these steps will prevent application irregularities and failures because the Cluster Manager interferes with the upgrade process. During the upgrade, the installer stops the **VocollectWebApplicationsVoiceCheck** service then attempts to delete and recreate it. With a clustered service, however, the Cluster Manager attempts to restart the service causing Tomcat to restart; then it prevents the installer from deleting the service.

## Upgrading from a Standard Installation to a Clustered Environment

You may initially choose to perform a normal installation of VoiceCheck then decide after installing to migrate to a clustered environment. The process to complete this migration is described in this section.

If you want to use the same database as the original installation, uninstall VoiceCheck and opt to retain the database. An uninstall is only required if the original machine is intended to be part of the cluster. After the original application is uninstalled, install VoiceCheck to a clustered environment (see Installing into a Clustered Environment) and set VoiceCheck to use the existing database.

If you want to upgrade the database to a clustered database, uninstall the application and opt to retain the database. Follow the instructions provided by the database vendor (either Oracle or SQL Server) to upgrade the existing database to a clustered database. Then install VoiceCheck to a clustered environment (see Installing into a Clustered Environment). During this installation, point to the newly clustered VoiceCheck database.

## Upgrading from a Standard Installation to a Load Balanced Environment

You may initially choose to perform a normal installation of VoiceCheck then decide after installing to migrate to a load balanced environment. The process to complete this migration is described in this section. This process requires VoiceCheck 1.10 or later.

> **NOTE**
> The items below assume the default installation directory, C:\ProgramFiles\Vocollect\VoiceCheck. Modify as necessary for an installation in non-

efault directory.

### Step 1 - Prerequisite Activities

- Backup VoiceCheck files at C:\ProgramFiles\Vocollect\VoiceCheck\VoiceCheckFiles.
- Stop the VoiceCheck service.

### Step 2 - Modify Databases

Perform database changes by editing the voc_system_properties table as follows.

- Enable the load balance property.
- Set value='true' where systempropertyid=-27;.
- Update the shared folder path in the FILE_BASE_DIR property. Replace {sharedFolder} with the shared folder path.
- Set value={sharedFolder}/VoiceCheckFiles' where systempropertyid=-100;

### Step 3 - Configure Shared Storage

Make shared storage path changes as described below.

1. In the C:\Program Files\Vocollect\VoiceCheck\bin.folder, make the following changes:
    - Edit the cpau_test.bat file. On line 4 replace <C:\Program Files\Vocollect\VoiceCheck> with the shared folder path.
      Example: copy /y nul "<sharedFolderpath>\logs\confirmed.txt"
    - Edit the setEnv.bat file. On lines 49 and 52 of HeapDumpPath replace replace <C:\Program Files\Vocollect\VoiceCheck> with shared folder path.
      Example: HeapDumpPath=<sharedFolderpath>\logs
    - Edit the tomcatServiceInstall.bat file. On lines 68 and 69 of LogPath to replace replace <C:\Program Files\Vocollect\VoiceCheck> with shared folder path.
      Example: LogPath=\\<sharedFolderpath>\logs
2. Edit the C:\Program Files\Vocollect\VoiceCheck\conf\current\configProperties.json file and replace<C:\Program Files\Vocollect\VoiceCheck> with the shared folder path:
    - "03voiceCheckStorageDirectory":\\<sharedFolderpath>”
    - "01tomcatLogDirectory":\\<sharedFolderpath>\\logs”
3. Edit the C:\Program Files\Vocollect\VoiceCheck\tomcat\conf\logging.properties file (lines 11, 15, 19, and 23) and replace <C:\Program Files\Vocollect\VoiceCheck> with a shared fole path for the following items
    - 1catalina.org.apache.juli.FileHandler.directory = \\<sharedFolderpath>\\logs
    - 2localhost.org.apache.juli.FileHandler.directory = \\<sharedFolderpath>\\logs
    - 3manager.org.apache.juli.FileHandler.directory = \\<sharedFolderpath>\\logs
    - 4host-manager.org.apache.juli.FileHandler.directory = \\<sharedFolderpath>\\logs

4. Edit the C:\Program Files\Vocollect\VoiceCheck\tomcat\webapps\VoiceCheck\WEB-INF\classes\log.properties file and replace <C:\Program Files\Vocollect\VoiceCheck> with a shared folder path as below.
    - Example: system.log.directory=\\<sharedFolderpath>\\logs
5. Edit the C:\Program Files\Vocollect\VoiceCheck\tomcat\webapps\VoiceCheck\WEB-INF\classes\log4j2.xml file that contains applicationLogs property(line 8) and replace <C:\Program Files\Vocollect\VoiceCheck> with a shared folder path.} as below:
    - Example: <Property name="applicationLogs"> \\<sharedFolderpath>\logs </Property>

### Step 4 - Modify Primary Node

> **IMPORTANT**
> Perform these steps only for the primary node.

1. On the primary node, edit the C:\Program Files\Vocollect\VoiceCheck\tomcat\webapps\VoiceCheck\WEB-INF\classes\server.properties file and set the server.ld.primary.node value to true.
2. Copy the configProperties.json file from C:\Program Files\Vocollect\VoiceCheck\conf\current to the shared storage path and rename it as clusterproperties.json.
3. Add the value of "01clusterType" in the clusterProperties.json file as "loadbalanced".
4. Update the value of "01authMode" in the clusterProperties.json file as described below:
    - If SSO is enabled along with load balancing, set the value to "sso".
    - If SSO is not enabled along with load balancing, then set the value to "basic"

### Step 5 - Complete Upgrade

1. Copy all VoiceCheck files from the VoiceCheck nodes to a shared folder: {sgharedFolder}\VoiceChecklFiles
2. Start the VoiceCheck service on all the nodes.

# Post-Installation Steps

This section covers steps that must be or can be performed after installation, but before logging into the system or importing data into the system. Each step is described separately.

## Database Maintenance Plan

Honeywell recommends setting up regular database maintenance jobs to maintain optimal system performance.

- Schedule a database transaction log backup job to run. This should run regularly between full backups, typically once per day. For higher volume systems or if performance begins to degrade, schedule this job to run more frequently. It will not greatly impact performance of the system, but will improve it over a long duration of time.
- Rebuilding and reorganizing indexes regularly can increase performance in higher volume systems as the indexes on the tables may become fragmented. Schedule these jobs for SQL Server anywhere every 4 to 24 hours depending on your system. For Oracle, once a day should be sufficient

# Initial Database Connection Pool Settings

## Performance optimizations for installations supporting many devices

The connection pool for database connectivity can be adjusted, if necessary, in the **database.properties** file. The property and default value are:

```
Connection.maxPoolSize=20
```

Listed below are the recommended initial settings, which may be tuned as needed. Other factors may influence performance and require connection pool optimization, such as the number of client browsers that will be connected.

- For up to 1000 devices, maintain the default value of 20
- For 1001 to 1500 devices, set to 30
- For 1501 to 2000 devices, set to 40
- For 2001 to 2500 devices, set to 50
- For each additional 500 devices, add 10 connections

> IMPORTANT
> Warning: Increase the connection pool value only when absolutely necessary. Setting this value too high may cause database deadlocks.

# Apache Tomcat Performance Tuning

Depending on the number of device and browser connections expected, you may need to configure Tomcat.

In a text editor, open the server.xml file found in: <installation path>\tomcat\conf.

In the connector definitions (for HTTP and HTTPS) add or adjust the following properties.

- **maxThreads**: The number of actual worker threads should be in the range of 20% of total connections expected. The default is 150. If, for example, you expect a typical load of 1000 workers and 500 browsers, then set this property value to 20% of 1500, or 300.

- **acceptCount**: The number of threads that Tomcat will accept and hold until a worker thread is available. This value can be a large number close to total connections possible, but cannot exceed your machine's limitations in memory and threads allowed. Various operating systems are different; for example Windows 64-bit architecture allows a much larger threshold than Windows 32-bit systems.

Refer to Apache Tomcat documentation for other performance settings.

## Java Virtual Machine Settings

The default memory settings for the Tomcat application server Java Virtual Machine start at 256 MB and can grow up to 1024 MB. A setting of 1GB (1024 MB) is sufficient for most installations, but this will vary by the type and amount of data you intend to view unfiltered in your VoiceCheck system. To size this yourself, open the window in the application with the data you expect to view and check the **Mem Usage** on **Windows Task Manager**.

To change JVM settings in **Windows**, do the following:

1. Run the **VocollectWebApplicationsVoiceCheckw.exe** file in the **bin** folder of the **Tomcat** install under the **Vocollect** directory.
2. Click on the Java tab.
3. If using the internal transcription engine, add the following parameters in the Java Options input box.

   -XX:MaxPermSize=512m

   -XX:PermSize=256m
4. Change the Maximum Memory Pool setting to your desired value.

   1024 MB recommended for small load implementations

   2048 MB recommended for up to 2500 workers

   Add an extra 1024 MB for the internal transcription engine
5. change the Initial Memory Pool setting as needed.

   512 MB recommended for small load implementations

   1024 MB recommended for up to 2500 workers
6. Set Thread stack size. (1024 KB recommended)
7. Click OK to save the settings and close the window.
8. Restart the webservice.

## First System Log On

Default roles and users are installed with the application.

The roles are:

- **Administrator**: granted full access to all administrative and general features of the application
- **Read-only**: granted read-only access to features (not granted access to any features that modify the system)

The users are:

- admin
- vocollect

Log in for the first time with the admin user name and **admin** as the password. This user will give you the appropriate access rights to start setting up the application.

When SSO is not used, passwords must be changed after the first log in, and must adhere to the following password complexity requirements.

A minimum of 8 characters, including:

- 1 upper-case letter
- 1 lower-case letter
- 1 numeral or special character

New passwords must not match any of the last three user passwords.

Users will be locked out after three invalid login attempts and must wait 15 minutes to try again or contact their system administrator to unlock their account.

The **vocollect** user (password: voiceworks) is set up so that Honeywell field personnel can log into the application. This user can be deleted once a customer's system is completely set up. Honeywell recommends that the customer keeps it enabled until the system is fully implemented and the customer no longer needs the support from a Honeywell field representative.

Once logged into the application as admin, select **Administration** > **Users** > **Edit Your Profile** and change the password for the admin user to secure this login. On subsequent logins, use the new password for the admin user.

# Creating Additional Sites for Multi-Site Implementations

In order to support multiple sites, you must perform several steps in VoiceConsole and in VoiceCheck for the sites and their respective tasks, task packages, device profiles, users, and operators.

## Creating Multiple Sites in VoiceConsole

See VoiceConsole documentation for more information.

### 1. Create site-specific task files for each site

Enter specific site settings for the Honeywell Voice Maintenance & Inspection Solution voice application via the VoiceConsole interface. See *VoiceConsole Online Help* for detailed steps.

### 2. Create a new site in VoiceConsole

HOW TO:

In the Administration section of the VoiceConsole GUI, navigate to **Sites** and click the **Create new site** action link.

### 3. Create a site-specific user for the new site

You need to create a site-specific administrator who can only view the site to which assigned.

HOW TO:

In the Administration section of the GUI, navigate to **Users** and click the **Create new user** action link.

Select **Administrator** in the **Roles** field.

Select the one site to granted access in the **Sites** field.

### 4. Migrate operators from an existing VoiceConsole database

If implementing a new system, you may not need to perform the steps in this section. The steps below show how to migrate operator templates from an existing VoiceConsole implementation.

HOW TO:

In the **Operator Management** tab , navigate to **Operators**, select the operators you want to move, and click the **Move Operators** > **Move/Add selected operators to a site** action link.

From the **Destination Site** drop-down list, select the new site.

Select **Move the Operator to the selected site**

Complete the move, then confirm the move by selecting the new site from the **Site Information** drop-down list.

> NOTE
> You may need to verify that the license supports any operators that are added.

### 5. Import a task to the new site

HOW TO:

In the **Device Management** tab, navigate to **Tasks** and click the **Import Task** action link.

Complete all relevant fields, then select the site(s) at which this task will be available.

### 6. Create a task package for the new site

HOW TO:

In the **Device Management** tab, navigate to **Task Packages** and click the **Create new task package** action link.

> NOTE
> Every task package requires that the advanced settings be specified for each new site. Honeywell recommends that these settings be saved in a separate text document and then pasted in the advanced settings box at the time of creating the new task package.

### 7. Create a device profile for the new site

HOW TO:

In the **Device Management** tab, navigate to **Device Profiles** and click the **Create new device profile** action link.

# Creating Multiple Sites in VoiceCheck

For multiple-site installations of VoiceCheck, you must create sites in addition to the singular default site.

## 1. Creating a new site in VoiceCheck

In the Administration section of the VoiceCheck GUI, navigate to **Sites** and click the **Create new site** action link.

## 2. Creating a site-specific user for the new site

In the Administration section of the GUI, navigate to **Users** and click the **Create new user** action link.

Select **Administrator** in the **Roles** field.

Select the one site to which the user is granted access in the **Sites** field.

Select **Enabled** status.

> TIP
> For other users to have access to this site, will must go back to the original site and edit the users to allows access to view or use this new site.

# Setting Up Application Security

Roles and users form the basis of application access control. The roles define privileges, and users can only perform the functions allowed by their assigned roles.

Default roles and users are installed with the application.

The roles are:

- **Administrator**: granted full access to all administrative and general features of the application
- **Read-only**: granted read-only access to features (not granted access to any features that modify the system)

The users are:

- admin
- vocollect

## Create Roles

**Roles** define what a user is allowed to do in the application. Use the default roles or create roles based on group and provide access to the users.

HOW TO:

In the Administration section of the GUI, navigate to **Roles** and click the **Create new role** action link.

For each role, grant access to specific features by checking them.

When setting up roles, consider the following:

- If you grant a role permission to perform an action, such as Create User, make sure you grant that role permission to view the page where that action is accessed (in this case, you would grant the user permission to View Users).
- Determine roles based on groups of users that perform the same functions and name roles according to those user groups.

  For example, shift managers may perform the same functions. Create a role called ShiftManagers and grant the appropriate rights to that role. Then, it is simple to determine which role to grant to users who are shift managers. In the future, this method will make it easy to determine which role to grant a user who has been newly hired for or promoted to a shift manager position.

> NOTE
> If you add a new role or change a role's privileges in a clustered implementation, you must reboot all the application servers in a cluster for that information to be updated in all the

ystems.

# Operators versus Users

In VoiceCheck, operator records and user accounts have different purposes.

- Operators are the technicians using Talkman devices to enter inspection results by speaking responses to voice prompts.
- Users are the technicians and administrators who log into the VoiceCheck graphical user interface (GUI) via a PC browser.

## Creating Operators

When you create an operator in VoiceCheck, you also create a user account automatically. These two accounts are linked because the technicians who perform voice-directed inspection assignments must also be able to log on to the VoiceCheck application to review and submit completed steps.

Create an operator and user from the **VoiceCheck > Operators** page.

> NOTE
> Operator IDs must be unique across VoiceCheck sites and must match operator IDs configured in VoiceConsole.

## Creating Users

Set up a user account without an associated operator from the **Administration > Users** page. Create users only for administrators or managers who manage operators using the VoiceCheck GUI but do not use Talkman devices for voice entry.

# Creating Operators and Users

Every technician performing inspection assignments must have an associated operator in VoiceCheck that matches an operator defined in VoiceConsole. Technicians must ***also*** have a user account for logging into the VoiceCheck application.

Setup both operator record and user account for each technician at the same time.

HOW TO:

In the VoiceCheck tab of the GUI, navigate to **Operators** and click the **Create new operator** action link.

Complete both operator and user fields on the Create Operator page.

### Create Users Only

For application users who do not sign onto Talkman devices, create a user account that is not linked to an operator record.

Each application GUI **user** must have a unique username and must be granted at least one role.

HOW TO:

In the Administration section of the GUI, navigate to **Users** and click the **Create new user** action link.

Create a separate user record for all non-operators who will use the application. When a user configures the application by adding or removing columns, applying filters, etc., these changes are saved for that user.

Refer to the VoiceCheck Online Help for more information about creating or editing roles and users.

### Create a Web Services User

If the assignment data imports from the host system, create a user for the host system to access VoiceCheck.

Assign the web services user a role that grants the Execute Web Services permission.

# Import and Export Operators/Users

Use the Import and Export Operators pages to manage both device operators and application users.

## Import

> NOTE
> These instructions assume an operators.zip file has been created with the Export function.

1. Navigate to **Inspection > Operators** page.
2. Click **Manage Operators > Import Operators**.
3. Makes sure "Import Operators is displayed in the **Operator ID/User Name** pull down.
4. Drag and drop an operators.zip file or browse to select the operators.zip file by clicking the **Upload** button.

### Import Criteria

A notification is displayed for any import issue. Various scenarios are described below:

- If the Operator ID/User Name already exists in the destination server, the operator is not imported. However, this does not prevent other operators in the operator.zip file from being imported.
- If the operator.zip file includes operator details, but the templates are for another user, the import is rejected.
- If an operator is associated to a single site and that site does not exist on the destination server, the operator is not imported
- If an operator is associated to multiple sites and not all those sites exist in the destination server, the operator is only imported into the existing sites.
- If an operator is associated to a role which does not exist on the destination server, the operator is imported and associated to the Read-only role.
- If an operator is associated to multiple roles and one of those roles does not exist in the destination server, the operator is only associated with the roles that exist.

> IMPORTANT
> After an operator is imported successfully to the destination server, logon to the server with that user and update the password. **Force Change Password** is enabled by default when importing operators.
> However when SSO is used, the forced password change does not occur.

## Export

1. Navigate to **Inspection > Operators** page.
2. Select one or more operators.
3. Click **Manage Operators > Export Selected Operators**. If no operators were selected, this link is not available.
4. An operators.zip file is created.

# Setting Up User Authentication

VoiceCheck can be set up to authenticate users who are signing into the system against a directory server such as LDAP or Active Directory.

1. Sign into **VoiceCheck**.
2. In the **Administration** tab, navigate to **System Configuration**.
3. Click the **Edit System Configuration** action link.
4. Select the **Authenticate users against directory server** option to enable users to log into the application using their directory server password. When selected, the following fields are displayed to configure associated parameters:

   **Host**: Enter the hostname or IP address of the directory server.

**Port**: Enter the port on which the directory server is listening for connections.

**Search User Distinguished Name**: Enter the username (name of the user object and its container location within the directory) of a trusted user who has search permission on the directory server. This is not required because many LDAP servers support anonymous directory server binding.

**Search Base**: Enter the location within the directory server to begin a user search.

**Searchable Attribute**: Enter the attribute on the directory server that maps to the username of a user entered in the application. This may be uid, sn, or another attribute, depending on the directory server setup.

5. Once this information is specified, enter a username in the **Test User Name** field and click **Test Directory Server Connection Information** to test if the system is able to validate a user's username and password on the directory server.
6. Click **Save Changes**.

## Setting Up the Export Web Service

VoiceCheck uses a host system web service to post inspection assignment results. You must set the URL and, if required, turn on authentication in the user interface so that VoiceCheck can transmit data successfully.

HOW TO:

In the Administration section of the GUI, navigate to **System Configuration** and click the **Edit System Configuration** action link.

Specify the connection parameters:

- **Service Endpoint**: Enter the URL for the web service endpoint for services provided by the host system. This is a required field.
- **Client Type**: Choose REST or SOAP web services for all data transmission between VoiceCheck to the host system
- **Requires Authentication**: Check this option if access to the service endpoint requires a username and password, then supply the credentials in the appropriate fields.
- **Export Settings**

  **Allow Auto Export**: Check the box to post results to the host system as soon as an assignment is completed. Uncheck the box to require the user to submit assignments manually.

  > NOTE
  > Click **Manage exports** from the VoiceCheck tab to stop or start exporting. Exporting starts upon server reboot.

  **Export mode**: Choose PUSH or PULL from the drop-down box. PUSH assignment exports send data to the host system when assignment data is ready. PULL assignment exports

allow the host system to call the server to get the data. There are three REST web services available to PULL data from assignment exports, Data Transmission.

# Setting Up a Transcription Server

## System Requirements

Honeywell recommends the following hardware and operating system requirements for systems to run a transcription server.

- 64-bit Windows Server 2012 or 64-bit Windows 7
- One 2.5Ghz CPU core
- 12GB RAM for the first transcription server instance plus an additional 4GB RAM for each additional transcription server instance

## Initial Setup

1. Download and install the latest version of Java 8 JRE using the default setup prompts.
2. Download and install the Latest Tomcat 7. Allow the installer to create a Windows service. The Tomcat installation directory is `CATALINA_HOME`.
3. Unzip `TranscriptionServerReleaseR1.6.zip` to the location of choice. This creates a `\transcription_server-1.6` folder. Refer to this folder as `TS_HOME`.

> **TIP**
> Honeywell recommends using the C:\ drive to save configuration time.

4. Add %TS_HOME%\TranscriptionServer\WEB-INF\classes to the system PATH environment variable.
5. Run the following installers included in the zip package:
    - vcredist_x64.exe – C++ runtime
    - w_ccompxe_redist_intel64_2015.4.221.msi

## Transcription Models

A transcription server "model" refers to the combination of language and domain that a transcription server uses to transcribe the audio input. For example:

- You want to transcribe the recorded audio from US English news broadcast. The model would be US English for the language and News Broadcast for the domain.
- You want to transcribe the recorded audio from Latin Spanish Trucking. The model would be Latin Spanish for the language and Trucking for the domain.

### Industry Language Models

The following industry language models are currently available:

| Domain | Language |
|---|---|
| Generic | English (US) |
| Generic | French Canadian |
| Generic | German |
| Generic | Latin American Spanish |
| Aerospace | English (US) |
| Trucking | English (US) |
| Trucking | French Canadian |
| Trucking | Latin American Spanish |

## Configure the Transcription Server

You must configure a separate instance of the Transcription Server for each model that you want to support. Configure multiple instances of the server for a single model if you wish to increase the transcription throughput for that language. Complete the following steps to configure a model instance.

1. Create a context.xml file in %CATALINA_HOME%\conf\Catalina\localhost. An example context.xml file for each language model is included in the distribution. If only a single transcription server instance is required, copy the example file as is.
   Otherwise, copy and rename the file. For example, copy enUS_Generic_1.6_m2_1.xml to enUS_Generic_1.6_m2_1.xml and enUS_Generic_1.6_m2_2.xml to configure multiple instances.

   > **IMPORTANT**
   > Verify that the server meets the RAM requirement to run the requested number of instances.

2. If you did not unzip to `C:\` in step 3 above, edit each file and change the docBase, modelFolder, uDataFolder, and waveFile attributes to `TS_HOME`. For example, change `docBase="C:\TranscriptionServerReleaseR1.6"` to `docBase="<your TS_HOME location>"`
3. Restart the Tomcat service.

4. Verify that each instance is responding at the specified URL.

   **Example**: Type `http://yourhostname/enUS_Generic_1.6_m1` into the browser, with `enUS_Generic_1.6_m2`being the name of the xml file you created in step 1. This assumes that you configured Tomcat to listen on port 80, which is the default. Otherwise, include the port chosen in the URL. The response from the server should look something like this:

```
<transcription>
<id>0</id>
<creationTimestamp>2016-10-13T14:57:10.519Z</creationTimestamp>
</transcription>
```

Next, configure the VoiceCheck server to connect to this Transcription Server as explained in Setting Up a Transcription Service Endpoint.

## Setting Up a Transcription Service Endpoint

VoiceCheck includes a built-in transcription engine for transcribing VoiceNotes and memos. This engine supports only a basic, generic English vocabulary. The external server can support either English, German, French Canadian, or Spanish language transcriptions. Honeywell recommends you use an external transcription server with customizations for inspections that employ industry-specific vocabulary.

Separate transcription services may be available for VoiceCheck. Ask your Honeywell representative for information.

If you install a custom transcription service on one or more servers, you must configure transcription service endpoint(s) so that VoiceCheck can properly submit and receive VoiceNotes via a REST web service.

**HOW TO**:

In the Administration section of the GUI, navigate to **System Configuration** and click the **Edit System Configuration** action link.

In the Transcription Service Settings, specify the service endpoint addresses.

- Transcription Service Endpoints: Enter each URL for the web service endpoint on a separate line. The web service connection may be secured (HTTPS) or not (HTTP).

To accommodate support of multiple languages and redirection based on language code, specify a locale in the URL and the VoiceCheck system will replace the token in the URL with the appropriate locale. If the token is not specified in the URL, all notes will go to that URL as before.

**Example**:

http://TranscriptionServer:8089/transcription/{locale}_Generic_1.6_m1

or

http://TranscriptionServer:8089/{locale}/transcription

IMPORTANT
To accommodate multiple languages, the transcription service for each language must either be running on the same host under different URLs, or the host names must contain the language code.

NOTE
If a VoiceNote or memo is being transcribed when a transcription server experiences a failure, that transcription will not complete until the server is restored. In an implementation with multiple transcription servers, the affected transcription does not fail over to another node.

## Setting Up Job Schedules

Schedules define when system processes should run. Define a different schedule for each process. So, you may specify for one process to happen every five minutes, while another process may run once daily or weekly.

If several of these operations run simultaneously, the system-wide performance may diminish. You should consider scheduling some of these jobs (for example, the VoiceCheck data purge and external database maintenance jobs) to run during off hours or non-peak times.

Refer to the VoiceCheck Online Help for more detail about setting job schedules.

## Setting Up Email Notifications

Set up VoiceCheck to email critical notifications to specific users.

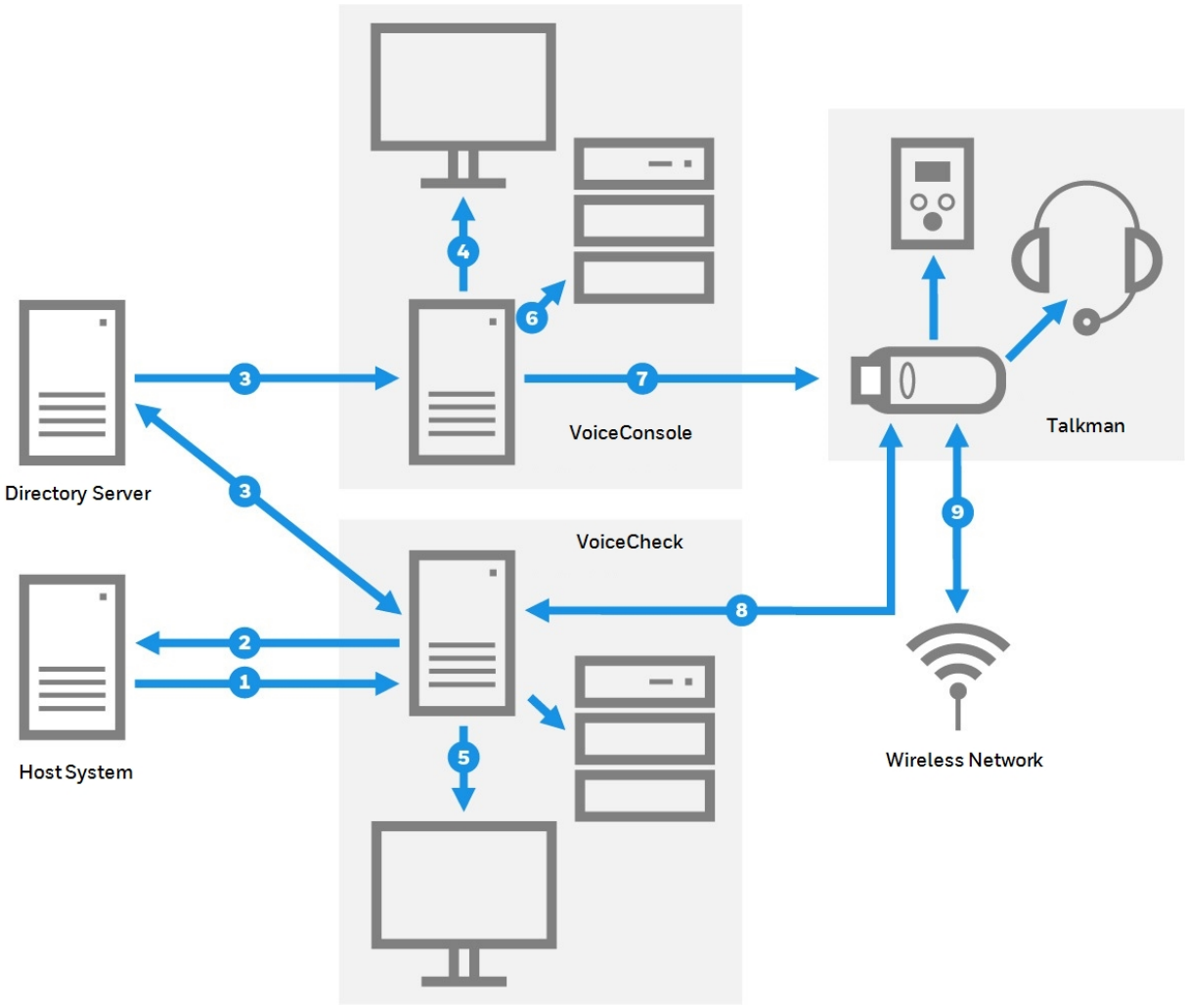
HOW TO:

1. Assign all relevant users to a role that grants the ability to view notifications.
2. Add email addresses to the appropriate user accounts.
3. In the Administration section of the GUI, navigate to **System Configuration** and click the **Edit System Configuration** action link.
4. Enter the outgoing SMTP host information.
5. If the host requires authentication, enter the user name and password.

## Security Considerations

VoiceCheck provides support for several methods of securing data communication. The following section shows how to configure the solution to use secure methods of transmission.

# Options for Securing the Implementation




**Voice Inspection Solution Security Options**

1. **Assignment import** – an inbound web service transmission from the host system to VoiceCheck. Secure this data by configuring a server certificate on the VoiceCheck server and using an HTTPS inbound URL.
2. **Results export** – an outbound web service transmission from VoiceCheck to the host system. Secure this data by configuring a server certificate on the host system and enabling HTTPS authentication in the **Post Assignment Results Web Service Settings** on the **System Configuration** page of the VoiceCheck GUI.

   **Results import** – an inbound web service transmission from the host system toVoiceCheck. Secure this data by configuring a server certificate on the VoiceCheck server and using an HTTPS inbound URL.

3. **User authentication** – an option to use an existing directory server to authenticate VoiceConsole and VoiceCheck users. Set this option on the **System Configuration** pages of VoiceConsole and/or VoiceCheck.
4. **VoiceConsole web pages** – the GUI pages served from Apache Tomcat to the client browser. Secure the web pages by selecting the **Enable HTTPS Support** option during the VoiceConsole installation and entering the certificate keystore information in the Tomcat configuration file.
5. **VoiceCheck web pages** – the GUI pages served from Apache Tomcat to the client browser. Secure the web pages by selecting the **Enable HTTPS Support** option and entering the certificate keystore information during the VoiceCheck installation.
6. **VoiceConsole Embedded Database** – a ***remote*** connection to an embedded database can be configured to use SSL (Secure Socket Layer) encryption. Secure this remote connection by installing a certificate and modifying a number of properties in the Apache Tomcat database.properties file. This option is not available for Microsoft SQL Server or Oracle databases and is not necessary for databases deployed on the same physical machine as the application server. See the VoiceConsole Implementation Guide for details.
7. **VoiceConsole device communications** – wireless communications secured by WEP, WPA or WPA2 protocols, and data transmission from Talkman devices to VoiceConsole secured by HTTPS. Set both security options in **Device Profiles** in VoiceConsole.
8. **VoiceCheck device communications** – data transmission between Talkman devices and VoiceCheck secured by Transport Layer Security (TLS/SSL) encryption. Install a certificate on the VoiceCheck application server, then select this option when creating a **Task Package** in VoiceConsole.**Wireless network authentication** – an option to deploy Extensible Authentication Protocol (EAP) to define data message formats for secure wireless communications among Honeywell solution components. Configure EAP on a site-wide basis by modifying the site in VoiceConsole.

Other communications shown in the graphic have security options that are not controlled within VoiceCheck. The VoiceCheck database should be deployed on the same physical network segment as the VoiceCheck application server, so wired network security can protect this data transmission as well as data sent between VoiceConsole and its local database. The Talkman device connects to a display device using HTTP and to SRX3 headset via Bluetooth v5.

## Encryption and Authentication in VoiceConsole

VoiceConsole offers various options for securing the user interface, network communications, and device communications. Honeywell recommends combining encryption with a protocol that supports authentication methods to keep the networks secure.

- To secure web server communications, enable HTTPS during the installation, then obtain and install a certificate.
- To secure communication between VoiceConsole and Talkman devices, enable HTTPS in the device profile.

- To authenticate device connectivity on a wireless network, enable Extensible Authentication Protocol (EAP).
- To secure a wireless network with encryption, enable Wired Equivalent Privacy (WEP) or Wi-Fi Protected Access (WPA/PSK or WPA2/PSK).
- To verify users by authenticating logons against a directory service, enable LDAP support in System Configuration.

See the VoiceConsole Implementation Guide for more information.

## Encryption and Authentication in VoiceCheck

VoiceCheck has secure options for data transmission between the application server and the user interface, the Talkman devices, and the host system.

- To secure web server communications, obtain and install a certificate, then enable HTTPS during the installation.
- To secure device communications, enable TLS/SSL in the task package.
- To secure access to a SOAP or REST web service on the host system for data exports, enable HTTPS basic authentication in System Configuration. The password is encrypted and stored in the VoiceCheck database.
- To verify users by authenticating logons against a directory service, enable LDAP support in System Configuration.

## HTTPS and TLS/SSL

Hypertext Transfer Protocol Secure (HTTPS) is a networking protocol that secures web- or browser-based transactions over a network that is not secure. All HTTPS user connections are encrypted with digital certificates which tell the browser to use encryption to protect data transmissions.

This protection is effective only if the browser verifies a certificate as valid and issued by a trusted authority. Therefore, you must ensure that server certificates are installed correctly and the browsers used for VoiceConsole and VoiceCheck administration are configured to accept the certificates.

Transport Layer Security (TLS), commonly referred to as Secure Sockets Layer (SSL), is an encryption protocol that uses a public key infrastructure to secure data communications between a server and client. Like HTTPS, TLS/SSL requires that a certificate is installed on the server and a specific network port for secured transmissions to Talkman devices or a remote VoiceConsole embedded database.

If you are configuring the implementation for any of the HTTPS or SSL options, the following components are needed. See HTTPS Certificate Installation for more information.

- Java keytool utility to create a certificate request
- A signed certificate, that includes all intermediate certificates if any exist

### Supported Authorities

Honeywell software supports the following certificate signing authorities.

- COMODO Certification Authority
- Cybertrust Educational CA
- DigiCert Global CA
- DigiCert High Assurance CA-3
- Entrust Certification Authority - L1B
- EssentialSSL CA
- GlobalSign Domain Validation CA
- GlobalSign Organization Validation CA
- Go Daddy Secure Certification Authority
- Microsoft Internet Authority
- Microsoft Secure Server Authority
- Network Solutions Certificate Authority
- Starfield Secure Certification Authority
- Thawte SGC CA
- VeriSign Class 3 Extended Validation SSL CA
- VeriSign Class 3 Extended Validation SSL SGC CA
- VeriSign Class 3 Secure Server CA
- VeriSign Class 3 Secure Server CA - G2
- www.verisign.com/CPS Incorp.by Ref. LIABILITY LTD.(c)97 VeriSign

# Solution Implementation Checklist

| Infrastructure | |
|---|---|
| ☐ | Acquire server, workstation hardware |
| ☐ | Acquire Database software |
| ☐ | Order Talkman A700x series or Android devices |
| ☐ | Order SRX3 Wireless Headsets |

| Infrastructure | |
|---|---|
| ☐ | Order chargers |
| ☐ | Determine architecture model: decentralized/centralized, multi-server, multi-site |
| ☐ | Determine number of servers, server specifications |
| ☐ | Determine clustered server configuration if necessary |
| ☐ | Prepare network configuration and ports, network specifications |
| ☐ | Determine server locations, physical security |
| ☐ | Determine workstation locations |

| VoiceConsole and Devices | |
|---|---|
| ☐ | Plan security options |
| ☐ | Obtain and install HTTPS certificate if needed |
| ☐ | Create VoiceConsole database |
| ☐ | Install VoiceConsole |
| ☐ | Import license file |
| ☐ | Create sites |
| ☐ | Create roles, users, operators |
| ☐ | Configure wireless security, authentication if needed |
| ☐ | Configure email notifications if needed |
| ☐ | Create device profile |
| ☐ | Import task |
| ☐ | Create task package |

| VoiceConsole and Devices | |
|---|---|
| ☐ | Configure Talkman devices - device profile, task package |
| ☐ | Configure HTTPS certificate information in Tomcat if needed |
| ☐ | Hold technician training with paired devices, headsets |

| VoiceCheck | |
|---|---|
| ☐ | Plan security options |
| ☐ | Install HTTPS certificate if needed |
| ☐ | Create VoiceCheck database |
| ☐ | Install VoiceCheck |
| ☐ | Create sites |
| ☐ | Create roles |
| ☐ | Create operators/users |
| ☐ | Configure authentication if needed |
| ☐ | Configure export web service connection |
| ☐ | Configure transcription service endpoints |
| ☐ | Set up job schedules |
| ☐ | Configure email notifications if needed |
| ☐ | Create VoiceForm |
| ☐ | Test web services integration between VoiceCheck and the host system |

# VoiceCheck Installation

This section covers actions you must take, information you need before you install the system, and steps on how to install the system.

# Before You Install VoiceCheck

Take these required actions and gather the required resources before running the VoiceCheck installer.

## Required Security Privileges

To successfully run the installer, the user must have Local Administrator privileges for the machine.

## Virus Protection Software and Other Programs

Disable any virus protection software and exit all programs before starting the VoiceCheck installation.

## Database Installation

If one is not already available, install a supported database platform.

Create a blank VoiceCheck database and a user with create, read, and write permissions to the database. When you run the installer in the next step, the database schema will be created automatically.

When creating the database, keep the following in mind:

- Spaces and characters — Do not use spaces in the database name. Also avoid using special characters.

> CAUTION
> Spaces and special characters can result in creating an invalid JDBC URL.

- TCP/IP protocol — Enable TCP/IP. The process to do this differs by database. Note that you most likely will have to restart the database service after making this change.
- Collation and accent methods — Use the proper database collation (sorting method) for the language in use, and append "_CI" and "_AI" as needed to the database collation name. To add both parameters for SQL Server, append "_CI_AI." For Oracle, "_AI" also includes a case-insensitive sort.

  If the SQL Server or Oracle database collation is not set to be case insensitive (CI), VoiceCheck may not work properly. Similarly, an accent-insensitive (AI) sort may be required for a specific language.
- Database size — Use the defaults for the initial database size.
- Maintenance — Plan and run regular backups, maintain the size of the transaction log, and rebuild indexes periodically.

**Microsoft SQL Server**

- If you create a new login for SQL Server, that login must have dbOwner privileges. dbOwner privileges are required to run the application after installation.

### Browser Configuration

Prior to installation, your browser must be configured properly. Regardless of which browser you are using, you must configure it to enable the application to work correctly and provide security.

- The browser must be set to reload the page at each visit.
- JavaScript must be enabled.
- The browser must be configured to accept cookies.
- The browser must be set to open new pages in a new tab or window.

These browser settings are typically accessed by selecting **Tools > (Internet) Options**.

### Information and Resources Required for Installation

- The VoiceCheck contents of your VoiceCheck DVD.
- The directory where the installation program should install the VoiceCheck folders.
- On Windows systems, the default is *C:\Program Files\Vocollect\VoiceCheck*
- The hostname of the machine on which VoiceCheck will be installed.
- The port that the Web Application should use. The default is 9070.
- The database information for the type of database server used.
- A valid HTTPS certificate for the VoiceCheck server if you plan to use encryption in data communications.
- When you install VoiceCheck, the following components are also installed on the server.
    - Apache Tomcat 9.0.106
    - Java JRE Corretto 8.452.09.1
    - VoiceCheck Web Application
    - VoiceCheck Online Help
- When you install VoiceCheck for the first time, two users are created with default passwords:
    - User = admin; password = admin
    - User = vocollect; password = voiceworks

# Running the Installation Program

This section covers how to install the Honeywell applications using the installation user interface.

> **CAUTION**
> To avoid potential issues, Honeywell recommends installing VoiceCheck directly from a local drive or from the distribution media. If the application is installed from a shared network drive, you may experience interruptions and failures.

- Close all other applications before installing
- When installing on Windows, run the installer as an administrator.
- If installing from a product DVD, navigate to and run **install.exe**.

### Introduction

The installation begins with an introduction screen.

Click **Next**.

### License Agreement

Review and accept the terms of the license agreement and click **Next**.

### Select Installation Path

Click **Next** to install to the default path or, if necessary, browse to the desired installation path and click **Next**.

### Software to Install

Click **Next** to start copying the required software files.

### Copying Software

During this step, VoiceCheck software files copy to the installation path. When the copy process is finished, click **Next**.

### Cluster Configuration

#### Cluster Configuration Details

Select No to continue a standard installation.

Select Yes if you want this installation to be part of a clustered environment. Specify a folder location for shared storage, then click **Next**. See Installing into a Clustered Environment for more information.

#### Load Balanced Environment Details

Check this option if you want to set up a load balanced environment.

> IMPORTANT
> The primary node must be installed first. For important additional load balancing installation information see Installing into a Load Balancing Environment.

If using load balancing, indicate if this installation is the primary node and identify the shared storage location then click **Next**.

**Shared Storage**

> IMPORTANT
> You must enter a full UNC path, including the application server hostname, to the shared storage location during a cluster installation. Do not reference a mapped drive or relative path.

### SSO Configuration

If using SSO, complete this screen. For additional information, see SSO Configuration.

### Configuration and Installation

This page contains three tabs for configuring your implementation of VoiceCheck.

1. Click the **Tomcat Server Configuration** tab.
2. Enter the appropriate information for your Tomcat server.

| Tomcat | |
|---|---|
| **Field** | **Description and Required Action** |
| Tomcat Login | Choose an account and enter the account username and password, if necessary.<br><br>In Windows, if you select **Use Existing Account**, ensure the account entered has the necessary permissions:<br>• Read permission to the directory from which the installation program is being run<br>• **Log on as a service** rights and permissions (refer to http://support.microsoft.com/kb/327545 for setup information).<br>• Write permissions to all paths provided during installation for the install folder, log files directory, application files location<br>• Write permissions to the shared drive for a clustered install (if applicable)<br><br>**NOTE**<br>If you want to use NT authentication for SQL Server databases for a Windows installation, you must use an existing account. |
| Tomcat Path | Confirm the default path to the location where log files will be stored or, if necessary, browse to the desired path. Log files track user activities in the VoiceCheck application. |
| Tomcat Port | Confirm the default ports the application server will use, or, if necessary, enter different ports. |

3. Click the **Database Configuration** tab.
4. Enter the appropriate information for your database.

| Microsoft SQL Server | |
|---|---|
| **Field** | **Description** |
| Data Hostname | DNS name or IP address of the machine hosting the database. |
| Database Port | The port that the database uses. Valid entry must be an integer between 1 and 65535. The default port for SQL Server is 1433. |
| Database Name | The name of the database. |

| Microsoft SQL Server | |
|---|---|
| **Field** | **Description** |
| JDBC URL (Advanced Settings only) | The JDBC URL for the database. Valid entry format:<br>jdbc:sqlserver://<host>:<port>;<br>DatabaseName=<database name> |
| Authentication Type | (for Windows installs only where an existing user was specified for the Tomcat Server configuration)<br>The authentication type used to connect to the database. If installing on Windows and an existing user was specified for the Tomcat Service configuration, select to use NT Authentication. Otherwise, select SQL Server Authentication. |
| Database Username | The username that the application should use to log into the database. This is disabled if using NT Authentication. |
| Database Password | The password of the user that the application should use to log into the database. This is disabled if using NT Authentication. |
| Database schema | The database schema you are using. |

| Oracle Database | |
|---|---|
| **Field** | **Description** |
| Data Hostname | DNS name or IP address of the machine hosting the database. |
| Database Port | The port that the database uses. Valid entry must be an integer between 1 and 65535. The default port for Oracle is 1521. |
| SID | The SID of the Oracle database. |
| JDBC URL (Advanced Settings only) | The JDBC URL for the database. Valid entry format:<br>jdbc:oracle:think:@<host>:<port>:<database name> |
| Database Username | The username that the application should use to log into the database. |
| Database Password | The password of the user that the application should use to log into the database. |

5. Click the **VoiceCheck Configuration** tab.
6. In the **Storage Directory** field, keep the default VoiceCheck installation path or browse to a different location. The storage directory must have sufficient space to store multiple VoiceNotes and photo files.
7. Check the **Enable HTTPS Support** checkbox if you want to enable secure HTTPS on all pages of VoiceCheck.
   a. Enter or browse to your HTTPS certificate **Keystore Location**.
   b. Enter your **Keystore Password** and **Keystore Alias**.

8. Click **Install Now**.
9. When the initial VoiceCheck installation completes, click **OK**.

### Setup Shortcuts

If desired, select the Start menu program group in which to place the VoiceCheck shortcut, or edit the path of the shortcut. Then click **Next**.

If you do not want a VoiceCheck shortcut on the Start menu, clear the **Create shortcut in the Start menu** checkbox. A shortcut to VoiceCheck is placed on the desktop after the installation process completes.

### Installation Complete

When the installation is complete, a success message displays with information about the uninstaller program.

If desired, click the **Generate script** button to generate an .xml file containing your installation selections. Use this script to perform additional silent installations.

Click **Done** to exit the installation program. The VoiceCheck application should open automatically in your supported browser.

### HTTPS Installation Not Running

If you enabled HTTPS support during the installation and VoiceCheck does not start up properly, check your HTTPS certificate keystore information and correct the values in the Tomcat server as needed. See Configuring Tomcat with Keystore Information for instructions on manually editing the keystore fields.

### Configure Photos URL

The installer does not ask for a host name during installation, so the name "localhost" is used for the hostname. If the URL used to connect to VoiceCheck is *http://localhost:9070/VoiceCheck* the exported URL for photos uses localhost rather than the server name or server IP address.

To reconfigure the URL to use the server name or IP address, open the server.properties file located at C:\Program Files\Vocollect\VoiceCheck\tomcat\webapps\VoiceCheck\WEB-INF\classes\server.properties, which is the default installation location. The file should look like this:

```
server.port=80
server.name=localhost
server.scheme=http
server.contextRoot=VoiceCheck
server.https.port=443
server.https.enabled=true
```

Change **server.name=localhost** to **server.name=<your IP address or DNS host name>**.

### Storage of Database Passwords

The installation program stores the database.properties file in the target installation folder. This file includes the database password and username that the application uses to log into the database (unless you are using SQL Server with NT Authentication). While the passwords in this file are encrypted, this file is a plain text file that can be read by any text editor. Therefore, if you want to secure this file, follow the appropriate steps to secure it with file permissions.

Related Topics

VoiceCheck Installation

# Solution Architecture Options

VoiceCheck can be installed with different architecture models, depending on requirements and available resources.

# Decentralized vs. Centralized Models

## Decentralized Architecture

A decentralized architecture model installs solution components at each site where voice is supported. In this model, the VoiceConsole and VoiceCheck applications and their related databases are installed at every site.

This type of installation enables the application to be installed and upgraded locally and limits the reliance on remote access.

## Centralized Architecture

VoiceCheck can be implemented with a centralized architecture model, where one instance of VoiceConsole and one instance of VoiceCheck provide inspection management features for technicians working at multiple sites. In this scenario, the databases and applications are installed at a single site, and that installation is used to monitor and record inspection functions being performed at one or more remote sites.

### Benefits

- **Centralized Management**: VoiceCheck does not need to be implemented separately at each site or distribution center.
- **Site-Segregated View**: A user with the proper privileges can easily switch between one site's data and another site's data.
- **Secure Access**: Only users with the proper privileges can view and manage multiple sites.

- **Importing Software Components Across Multiple Sites**: A user can import data for multiple sites on one server.

### Considerations

- **Network Requirements**: Network bandwidth must be sufficient to handle activity at all managed sites, especially at shift starts. Remote access must be secure and provide sufficient performance for technicians accessing the VoiceCheck user interface.

# Single Server vs. Multiple Server Models

## Single Application Server Solution

VoiceCheck and VoiceConsole can be installed on the same server, in any order, but cannot share the same database. However, the database information for the first application installed can often make it easier to install the second application.

The two applications do require separate installations of Apache Tomcat and must be configured to use separate TCP/IP communication ports in order to avoid port conflicts. Honeywell recommends that the first installed application be running when the second is installed so that ports in use can be detected.

## Multi-Server/Multi-Site Solution

If you plan to install VoiceCheck and VoiceConsole on separate servers ***and*** configure multiple sites in each application, there are important issues to consider in planning. A site is the location where a technician, who is wearing a Talkman device and following a voice-directed workflow, is working.

See also Creating Additional Sites for Multi-Site Implementations for instructions on creating additional sites in both applications.

### Time Zone Considerations in Multi-Site Implementations

Time zones affect the time stamps that are recorded for VoiceCheck and VoiceConsole activity.

- Actions performed by technicians: The time zone is defined by the VoiceConsole site with which each device is associated. Therefore, time stamps in device messages are set according to the time zone on the VoiceConsole server.
- Actions performed by VoiceConsole users: The time stamps are set by the VoiceConsole server.
- Actions performed by VoiceCheck users: The time stamps are set by the VoiceCheck server.

Both VoiceCheck and VoiceConsole have rules about when certain actions can be performed. If time stamps differ, due to either of the following scenarios, it can cause unexpected errors.

- **Multi-Server Implementations**: In implementations where VoiceCheck and VoiceConsole are installed on different servers, the time on these must be servers synced. This is not an issue if VoiceCheck and VoiceConsole are installed on the same server.
- **Multi-Site Implementations**: When you set up a site in either VoiceCheck or VoiceConsole, you must specify the time zone where that site is located. You must ensure that the same time zone is specified for a site in both applications. You are not required to specify the same site name; however, Honeywell recommends that you use the same site name for simplicity.

Once the sites are set up in both applications, load a device profile for each site.

### Voice Process Software in Multi-Site Implementations

VoiceCheck is designed to work with voice applications, Honeywell's voice process software.

When using multiple sites in VoiceCheck with voice application software, perform the following procedure:

1. In VoiceConsole, create a new task package and select to **Import New Task** from the **Name** drop-down list on the **Create Task Package: Select Task** page.
2. On the **Create Task Package: Set Sites** page on the **Task Settings** tab, enter the site for which you are creating the task package in the **SiteName** field.
   If the **SiteName** field is not available, this process cannot be performed.
3. Complete the task package creation process.
4. Repeat the previous three steps for each site supported.

## Database Servers

For best performance, Honeywell recommends installing the VoiceCheck database on a separate server from the application, although a single server implementation is supported.

Honeywell recommends that you ***not*** install the VoiceCheck application and database and the VoiceConsole application and database all on a single server to avoid the single point of failure scenario.

## Clustered Environments

VoiceCheck can be installed on servers that are grouped for failover. Failover systems provide a fully redundant instance of each node, brought online only when its associated primary node fails.

The VoiceConsole application may also be configured on a server cluster for load balancing. See the VoiceConsole Implementation Guide for more details.

Clusters can be configured in three ways, as shown in the next sections.

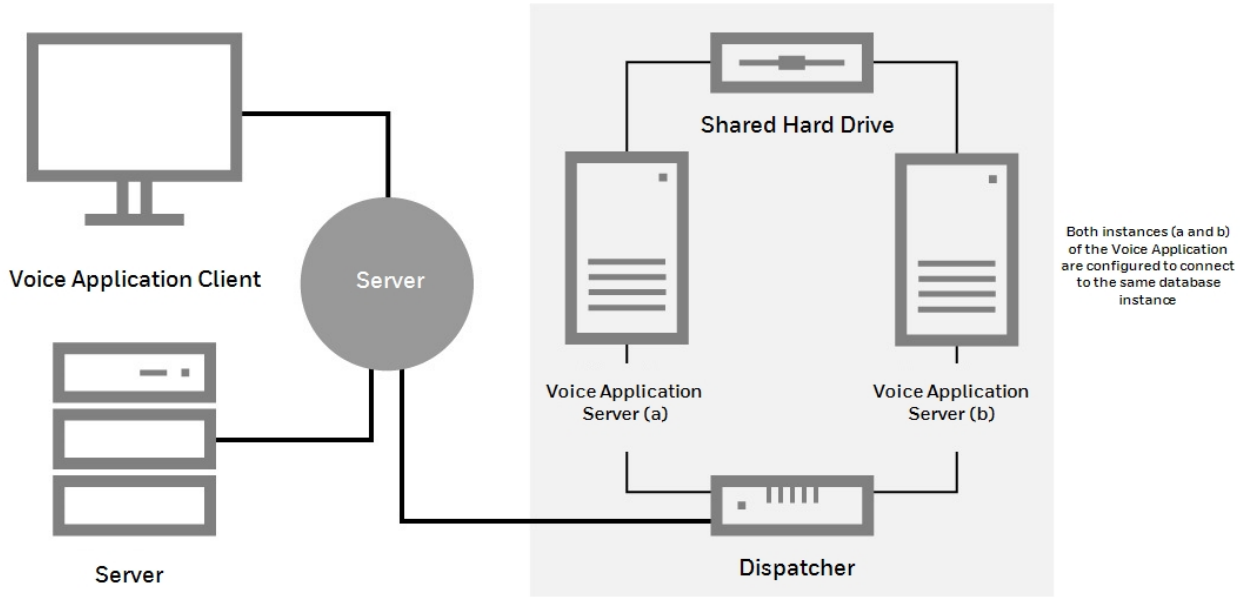
- Single database with clustered application servers
- Single application server with a clustered database

- Clustered database and application servers

## Single Database with Clustered Application Servers

The VoiceCheck or VoiceConsole application is installed on multiple nodes of a clustered application server that communicates with a single instance of the associated database. Application clients communicate through a dispatcher.

Shown below, this configuration is setup during the VoiceCheck or VoiceConsole installation process.

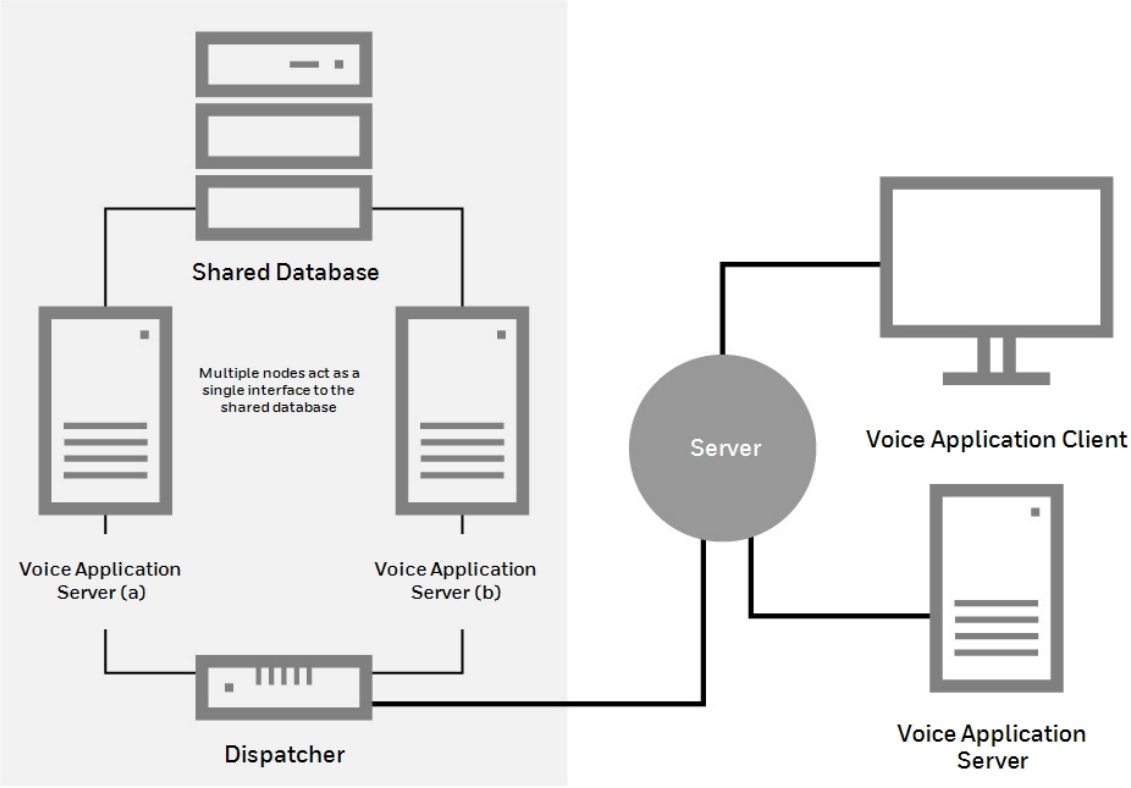



**Single Database with Clustered Application Servers**

The shared drive contains log files.

## Single Application Server with Clustered Database

VoiceCheck or VoiceConsole is installed on a single application server. It communicates with the associated database that has multiple nodes acting as a single interface for a common underlying database. This configuration is shown in the figure below.



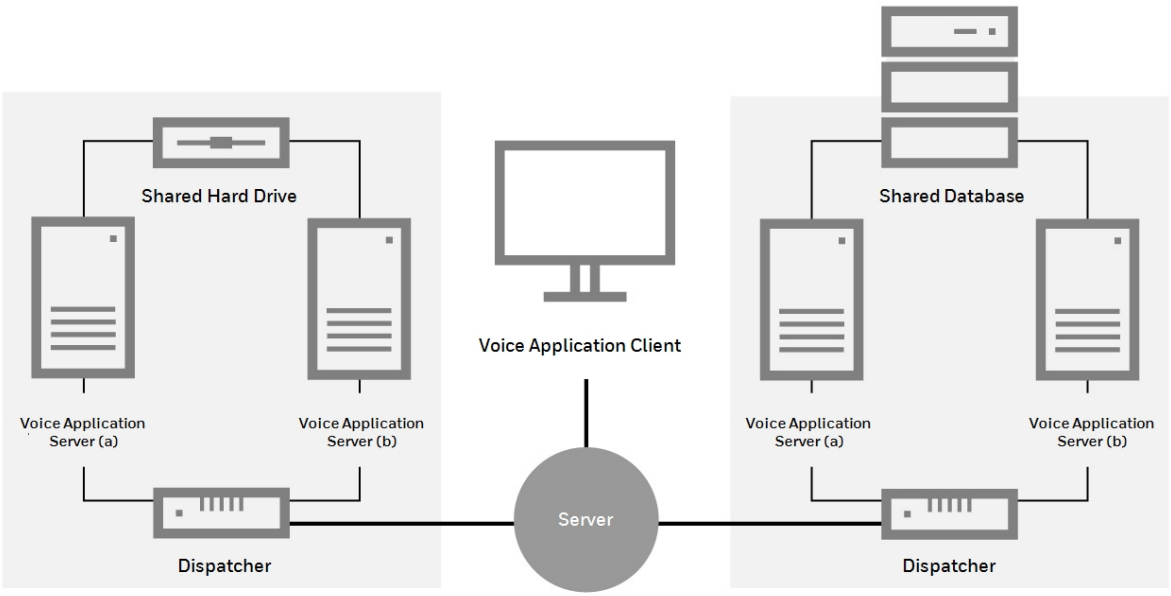

**Single Application Server with Clustered Database**

See your database documentation for setup information.

## Clustered Database and Application Servers

This configuration, shown in the figure below is a combination of the two scenarios described above.

In this scenario there are no single points of failure as both the application servers and the databases have some form of redundant response mechanism.




**Both Database and Application Server Clustering**

The shared drive contains the log files.

# Installing into a Clustered Environment

When installing the application on a Windows Server clustered environment, you must perform the following steps:

1. Install the application on the first node. Note that you will need to provide some additional information when installing in a clustered environment.
2. Install the application on the next node. Most of the information is defaulted, based on the information provided in the first installation. In most cases, the information should not be changed when installing the second node.
3. Ensure that the active node has access to the shared storage location.

## Cluster Installation Steps for Windows Server

1. Select **Start** > **Administrative Tools**, and launch **Failover Cluster Manager**.
2. In the cluster configuration, highlight **Services and applications**, and select “Configure a Service or Application...” to start the appropriate wizard.
3. Select “Generic Service” from the **Select Service or Application** screen.
4. Select the **VocollectWebApplicationsVoiceCheck** service to configure, and choose an available name.
5. Assign the shared cluster disk to the service on the **Select Storage** screen.

6. Continue and finish the wizard; a new service configuration will appear under **Services and applications**.
7. Edit the properties of the **VocollectWebApplicationsVoiceCheck** service in the configuration to remove all Startup parameters.

# Network Configuration

The VoiceConsole server and its database and the VoiceCheck server and its database communicate constantly and should be installed with the fastest possible network connections between them.

Honeywell recommends that you install the servers and the databases on the same local network subnet.

# Network Protocols and Ports

VoiceConsole uses the following protocols.

- Internet Control Message Protocol (ICMP)
- Hypertext Transfer Protocol (HTTP)
- Hypertext Transfer Protocol with Secure Sockets Layer (HTTPS)

VoiceCheck uses the following protocols.

- Hypertext Transfer Protocol (HTTP)
- Hypertext Transfer Protocol with Secure Sockets Layer (HTTPS)
- Internet Protocol Suite (TCP/IP)
- Simple Mail Transport Protocol (SMTP)

VoiceConsole and VoiceCheck use the following ports by default. If these ports are not available, the next available ports in sequence are used. An advanced Apache Tomcat user can change the Tomcat-related ports after installation if necessary.

## VoiceCheck

| Port | Connection | Process | Comments |
|---|---|---|---|
| 9070 | HTTP | Apache Tomcat Service | Used for proper startup and shutdown. |
| 9071 | HTTP | Apache Tomcat Service | If the standard port 9070 is not available, VoiceCheck looks for and uses the next available port. |
| 9445 | HTTPS | Apache Tomcat Service | Used for startup and shutdown in an SSL-secured environment. |

| Port | Connection | Process | Comments |
|---|---|---|---|
| 9008 | TCP/IP | Shutdown listener | |
| 9012 | TCP | AJP | AJP is a standard component of Apache Tomcat. It is a connector between Tomcat and its servlet container. It forwards the requests received from the browser to the servlet container. VoiceCheck uses it in its default configuration. |

### VoiceConsole

| Port | Connection | Process | Comments |
|---|---|---|---|
| 9090 | HTTP | Apache Tomcat Service | Used for proper startup and shutdown. |
| 9091 | HTTP | Apache Tomcat Comet API | The Comet API is used for asynchronous responses. |
| 9443 | HTTPS | Apache Tomcat Service | For inbound, browser-only, encryption. |
| 9006 | TCP/IP | Shutdown listener | |
| 9010 | TCP | AJP | AJP is a standard component of Apache Tomcat. It is a connector between Tomcat and its servlet container. It forwards the requests received from the browser to the servlet container. VoiceConsole uses it in its default configuration. |

# VoiceCheck Upgrades

The VoiceCheck installation program can be used to perform a VoiceCheck upgrade as well. Before upgrading your existing version of VoiceCheck to a new version of the product, consider the following guidance.

## Silent Upgrades

> IMPORTANT
> Before performing a silent upgrade to VoiceCheck 1.11, review Silent Installation.

## General Guidance

### Backing Up and Re-creating Data

- Back up your existing database before upgrading VoiceCheck to reduce the risk of data loss.

- Preserve any customizations created on your existing system before beginning the upgrade to the new system. After the upgrade, you will need to restore these customizations.

### Database Upgrades

- Upgrade from one database platform to another are not supported..
- The upgrade installer cannot be used to upgrade from one version of the database server to another. You should contact the database vendor.
- When an original VoiceCheck implementation uses a SQLServer database, the upgrade installer only recognizes a database schema name of "dbo." Therefore, if using a VoiceCheck SQL Server database with a different schema, move all database tables to the dbo schema before upgrading.

> IMPORTANT
> Honeywell strongly recommends backing up the database before performing a VoiceCheck upgrade.

## Standard Upgrade

When running the upgrade installer:

- The installer detects whether a VoiceCheck version is already installed and uses this information to determine if an upgrade is possible.
- To upgrade a VoiceCheck database while installing the VoiceCheck application to a new server, you must first install the version of the application that corresponds with the existing database. During the installation (See Running the Installation Program) , enter the database settings so that the installer recognizes it.

  With the legacy version fully installed, run the installer for the new version of the VoiceCheck application. It detects the existing database and upgrades the tables.

  When an original VoiceCheck implementation uses a SQLServer database, the upgrade installer only recognizes a database schema name of "dbo." Therefore, if using a VoiceCheck SQL Server database with a different schema, move all database tables to the dbo schema before upgrading.
- In a clustered environment, you must delete the Cluster Resource associated with the **VocollectWebApplicationsVoiceCheck** service prior to initiating the upgrade. After the upgrade is complete on all nodes, add the Cluster Resource again.

  Performing these steps will prevent application irregularities and failures because the Cluster Manager interferes with the upgrade process. During the upgrade, the installer stops the **VocollectWebApplicationsVoiceCheck** service then attempts to delete and recreate it. With a clustered service, however, the Cluster Manager attempts to restart the service causing Tomcat to restart; then it prevents the installer from deleting the service.

## Upgrading from a Standard Installation to a Clustered Environment

You may initially choose to perform a normal installation of VoiceCheck then decide after installing to migrate to a clustered environment. The process to complete this migration is described in this section.

If you want to use the same database as the original installation, uninstall VoiceCheck and opt to retain the database. An uninstall is only required if the original machine is intended to be part of the cluster. After the original application is uninstalled, install VoiceCheck to a clustered environment (see Installing into a Clustered Environment) and set VoiceCheck to use the existing database.

If you want to upgrade the database to a clustered database, uninstall the application and opt to retain the database. Follow the instructions provided by the database vendor (either Oracle or SQL Server) to upgrade the existing database to a clustered database. Then install VoiceCheck to a clustered environment (see Installing into a Clustered Environment). During this installation, point to the newly clustered VoiceCheck database.

## Upgrading from a Standard Installation to a Load Balanced Environment

You may initially choose to perform a normal installation of VoiceCheck then decide after installing to migrate to a load balanced environment. The process to complete this migration is described in this section. This process requires VoiceCheck 1.10 or later.

> **NOTE**
> The items below assume the default installation directory, C:\ProgramFiles\Vocollect\VoiceCheck. Modify as necessary for an installation in non-default directory.

### Step 1 - Prerequisite Activities

- Backup VoiceCheck files at C:\ProgramFiles\Vocollect\VoiceCheck\VoiceCheckFiles.
- Stop the VoiceCheck service.

### Step 2 - Modify Databases

Perform database changes by editing the voc_system_properties table as follows.

- Enable the load balance property.
- Set value='true' where systempropertyid=-27;.
- Update the shared folder path in the FILE_BASE_DIR property. Replace {sharedFolder} with the shared folder path.
- Set value={sharedFolder}/VoiceCheckFiles' where systempropertyid=-100;

### Step 3 - Configure Shared Storage

Make shared storage path changes as described below.

1. In the C:\Program Files\Vocollect\VoiceCheck\bin.folder, make the following changes:
    - Edit the cpau_test.bat file. On line 4 replace <C:\Program Files\Vocollect\VoiceCheck> with the shared folder path.
      Example: copy /y nul "<sharedFolderpath>\logs\confirmed.txt"
    - Edit the setEnv.bat file. On lines 49 and 52 of HeapDumpPath replace replace <C:\Program Files\Vocollect\VoiceCheck> with shared folder path.
      Example: HeapDumpPath=<sharedFolderpath>\logs
    - Edit the tomcatServiceInstall.bat file. On lines 68 and 69 of LogPath to replace replace <C:\Program Files\Vocollect\VoiceCheck> with shared folder path.
      Example: LogPath=\\<sharedFolderpath>\logs
2. Edit the C:\Program Files\Vocollect\VoiceCheck\conf\current\configProperties.json file and replace<C:\Program Files\Vocollect\VoiceCheck> with the shared folder path:
    - "03voiceCheckStorageDirectory":\\<sharedFolderpath>”
    - "01tomcatLogDirectory":\\<sharedFolderpath>\\logs”
3. Edit the C:\Program Files\Vocollect\VoiceCheck\tomcat\conf\logging.properties file (lines 11, 15, 19, and 23) and replace <C:\Program Files\Vocollect\VoiceCheck> with a shared fole path for the following items
    - 1catalina.org.apache.juli.FileHandler.directory = \\<sharedFolderpath>\\logs
    - 2localhost.org.apache.juli.FileHandler.directory = \\<sharedFolderpath>\\logs
    - 3manager.org.apache.juli.FileHandler.directory = \\<sharedFolderpath>\\logs
    - 4host-manager.org.apache.juli.FileHandler.directory = \\<sharedFolderpath>\\logs
4. Edit the C:\Program Files\Vocollect\VoiceCheck\tomcat\webapps\VoiceCheck\WEB-INF\classes\log.properties file and replace <C:\Program Files\Vocollect\VoiceCheck> with a shared folder path as below.
    - Example: system.log.directory=\\<sharedFolderpath>\\logs
5. Edit the C:\Program Files\Vocollect\VoiceCheck\tomcat\webapps\VoiceCheck\WEB-INF\classes\log4j2.xml file that contains applicationLogs property(line 8) and replace <C:\Program Files\Vocollect\VoiceCheck> with a shared folder path.} as below:
    - Example: <Property name="applicationLogs"> \\<sharedFolderpath>\logs </Property>

### Step 4 - Modify Primary Node

> **IMPORTANT**
> Perform these steps only for the primary node.

1. On the primary node, edit the C:\Program Files\Vocollect\VoiceCheck\tomcat\webapps\VoiceCheck\WEB-

INF\classes\server.properties file and set the server.ld.primary.node value to true.

2. Copy the configProperties.json file from C:\Program Files\Vocollect\VoiceCheck\conf\current to the shared storage path and rename it as clusterproperties.json.
3. Add the value of "01clusterType" in the clusterProperties.json file as "loadbalanced".
4. Update the value of "01authMode" in the clusterProperties.json file as described below:
    - If SSO is enabled along with load balancing, set the value to "sso".
    - If SSO is not enabled along with load balancing, then set the value to "basic"

### Step 5 - Complete Upgrade

1. Copy all VoiceCheck files from the VoiceCheck nodes to a shared folder: {sgharedFolder}\VoiceChecklFiles
2. Start the VoiceCheck service on all the nodes.

# Post-Installation Steps

This section covers steps that must be or can be performed after installation, but before logging into the system or importing data into the system. Each step is described separately.

## Database Maintenance Plan

Honeywell recommends setting up regular database maintenance jobs to maintain optimal system performance.

- Schedule a database transaction log backup job to run. This should run regularly between full backups, typically once per day. For higher volume systems or if performance begins to degrade, schedule this job to run more frequently. It will not greatly impact performance of the system, but will improve it over a long duration of time.
- Rebuilding and reorganizing indexes regularly can increase performance in higher volume systems as the indexes on the tables may become fragmented. Schedule these jobs for SQL Server anywhere every 4 to 24 hours depending on your system. For Oracle, once a day should be sufficient

## Initial Database Connection Pool Settings

### Performance optimizations for installations supporting many devices

The connection pool for database connectivity can be adjusted, if necessary, in the **database.properties** file. The property and default value are:

```
Connection.maxPoolSize=20
```

Listed below are the recommended initial settings, which may be tuned as needed. Other factors may influence performance and require connection pool optimization, such as the number of client browsers that will be connected.

- For up to 1000 devices, maintain the default value of 20
- For 1001 to 1500 devices, set to 30
- For 1501 to 2000 devices, set to 40
- For 2001 to 2500 devices, set to 50
- For each additional 500 devices, add 10 connections

> IMPORTANT
> Warning: Increase the connection pool value only when absolutely necessary. Setting this value too high may cause database deadlocks.

## Apache Tomcat Performance Tuning

Depending on the number of device and browser connections expected, you may need to configure Tomcat.

In a text editor, open the server.xml file found in: <installation path>\tomcat\conf.

In the connector definitions (for HTTP and HTTPS) add or adjust the following properties.

- **maxThreads**: The number of actual worker threads should be in the range of 20% of total connections expected. The default is 150. If, for example, you expect a typical load of 1000 workers and 500 browsers, then set this property value to 20% of 1500, or 300.
- **acceptCount**: The number of threads that Tomcat will accept and hold until a worker thread is available. This value can be a large number close to total connections possible, but cannot exceed your machine's limitations in memory and threads allowed. Various operating systems are different; for example Windows 64-bit architecture allows a much larger threshold than Windows 32-bit systems.

Refer to Apache Tomcat documentation for other performance settings.

## Java Virtual Machine Settings

The default memory settings for the Tomcat application server Java Virtual Machine start at 256 MB and can grow up to 1024 MB. A setting of 1GB (1024 MB) is sufficient for most installations, but this will vary by the type and amount of data you intend to view unfiltered in your VoiceCheck system. To size this yourself, open the window in the application with the data you expect to view and check the **Mem Usage** on **Windows Task Manager**.

To change JVM settings in **Windows**, do the following:

1. Run the **VocollectWebApplicationsVoiceCheckw.exe** file in the **bin** folder of the **Tomcat** install under the **Vocollect** directory.

2. Click on the Java tab.
3. If using the internal transcription engine, add the following parameters in the Java Options input box.

   -XX:MaxPermSize=512m

   -XX:PermSize=256m
4. Change the Maximum Memory Pool setting to your desired value.

   1024 MB recommended for small load implementations

   2048 MB recommended for up to 2500 workers

   Add an extra 1024 MB for the internal transcription engine
5. change the Initial Memory Pool setting as needed.

   512 MB recommended for small load implementations

   1024 MB recommended for up to 2500 workers
6. Set Thread stack size. (1024 KB recommended)
7. Click OK to save the settings and close the window.
8. Restart the webservice.

# First System Log On

Default roles and users are installed with the application.

The roles are:

- **Administrator**: granted full access to all administrative and general features of the application
- **Read-only**: granted read-only access to features (not granted access to any features that modify the system)

The users are:

- admin
- vocollect

Log in for the first time with the admin user name and **admin** as the password. This user will give you the appropriate access rights to start setting up the application.

When SSO is not used, passwords must be changed after the first log in, and must adhere to the following password complexity requirements.

A minimum of 8 characters, including:

- 1 upper-case letter
- 1 lower-case letter

- 1 numeral or special character

New passwords must not match any of the last three user passwords.

Users will be locked out after three invalid login attempts and must wait 15 minutes to try again or contact their system administrator to unlock their account.

The **vocollect** user (password: voiceworks) is set up so that Honeywell field personnel can log into the application. This user can be deleted once a customer's system is completely set up. Honeywell recommends that the customer keeps it enabled until the system is fully implemented and the customer no longer needs the support from a Honeywell field representative.

Once logged into the application as admin, select **Administration** > **Users** > **Edit Your Profile** and change the password for the admin user to secure this login. On subsequent logins, use the new password for the admin user.

# Creating Additional Sites for Multi-Site Implementations

In order to support multiple sites, you must perform several steps in VoiceConsole and in VoiceCheck for the sites and their respective tasks, task packages, device profiles, users, and operators.

## Creating Multiple Sites in VoiceConsole

See VoiceConsole documentation for more information.

### 1. Create site-specific task files for each site

Enter specific site settings for the Honeywell Voice Maintenance & Inspection Solution voice application via the VoiceConsole interface. See *VoiceConsole Online Help* for detailed steps.

### 2. Create a new site in VoiceConsole

HOW TO:

In the Administration section of the VoiceConsole GUI, navigate to **Sites** and click the **Create new site** action link.

### 3. Create a site-specific user for the new site

You need to create a site-specific administrator who can only view the site to which assigned.

HOW TO:

In the Administration section of the GUI, navigate to **Users** and click the **Create new user** action link.

Select **Administrator** in the **Roles** field.

Select the one site to granted access in the **Sites** field.

### 4. Migrate operators from an existing VoiceConsole database

If implementing a new system, you may not need to perform the steps in this section. The steps below show how to migrate operator templates from an existing VoiceConsole implementation.

HOW TO:

In the **Operator Management** tab , navigate to **Operators**, select the operators you want to move, and click the **Move Operators** > **Move/Add selected operators to a site** action link.

From the **Destination Site** drop-down list, select the new site.

Select **Move the Operator to the selected site**

Complete the move, then confirm the move by selecting the new site from the **Site Information** drop-down list.

> NOTE
> You may need to verify that the license supports any operators that are added.

### 5. Import a task to the new site

HOW TO:

In the **Device Management** tab, navigate to **Tasks** and click the **Import Task** action link.

Complete all relevant fields, then select the site(s) at which this task will be available.

### 6. Create a task package for the new site

HOW TO:

In the **Device Management** tab, navigate to **Task Packages** and click the **Create new task package** action link.

> NOTE
> Every task package requires that the advanced settings be specified for each new site. Honeywell recommends that these settings be saved in a separate text document and then pasted in the advanced settings box at the time of creating the new task package.

### 7. Create a device profile for the new site

HOW TO:

In the **Device Management** tab, navigate to **Device Profiles** and click the **Create new device profile** action link.

# Creating Multiple Sites in VoiceCheck

For multiple-site installations of VoiceCheck, you must create sites in addition to the singular default site.

## 1. Creating a new site in VoiceCheck

In the Administration section of the VoiceCheck GUI, navigate to **Sites** and click the **Create new site** action link.

## 2. Creating a site-specific user for the new site

In the Administration section of the GUI, navigate to **Users** and click the **Create new user** action link.

Select **Administrator** in the **Roles** field.

Select the one site to which the user is granted access in the **Sites** field.

Select **Enabled** status.

> TIP
> For other users to have access to this site, will must go back to the original site and edit the users to allows access to view or use this new site.

# Setting Up Application Security

Roles and users form the basis of application access control. The roles define privileges, and users can only perform the functions allowed by their assigned roles.

Default roles and users are installed with the application.

The roles are:

- **Administrator**: granted full access to all administrative and general features of the application
- **Read-only**: granted read-only access to features (not granted access to any features that modify the system)

The users are:

- admin
- vocollect

### Create Roles

**Roles** define what a user is allowed to do in the application. Use the default roles or create roles based on group and provide access to the users.

HOW TO:

In the Administration section of the GUI, navigate to **Roles** and click the **Create new role** action link.

For each role, grant access to specific features by checking them.

When setting up roles, consider the following:

- If you grant a role permission to perform an action, such as Create User, make sure you grant that role permission to view the page where that action is accessed (in this case, you would grant the user permission to View Users).
- Determine roles based on groups of users that perform the same functions and name roles according to those user groups.

  For example, shift managers may perform the same functions. Create a role called ShiftManagers and grant the appropriate rights to that role. Then, it is simple to determine which role to grant to users who are shift managers. In the future, this method will make it easy to determine which role to grant a user who has been newly hired for or promoted to a shift manager position.

> NOTE
> If you add a new role or change a role's privileges in a clustered implementation, you must reboot all the application servers in a cluster for that information to be updated in all the systems.

## Operators versus Users

In VoiceCheck, operator records and user accounts have different purposes.

- Operators are the technicians using Talkman devices to enter inspection results by speaking responses to voice prompts.
- Users are the technicians and administrators who log into the VoiceCheck graphical user interface (GUI) via a PC browser.

### Creating Operators

When you create an operator in VoiceCheck, you also create a user account automatically. These two accounts are linked because the technicians who perform voice-directed inspection assignments must also be able to log on to the VoiceCheck application to review and submit completed steps.

Create an operator and user from the **VoiceCheck > Operators** page.

NOTE
Operator IDs must be unique across VoiceCheck sites and must match operator IDs configured in VoiceConsole.

### Creating Users

Set up a user account without an associated operator from the **Administration > Users** page. Create users only for administrators or managers who manage operators using the VoiceCheck GUI but do not use Talkman devices for voice entry.

## Creating Operators and Users

Every technician performing inspection assignments must have an associated operator in VoiceCheck that matches an operator defined in VoiceConsole. Technicians must ***also*** have a user account for logging into the VoiceCheck application.

Setup both operator record and user account for each technician at the same time.

HOW TO:

In the VoiceCheck tab of the GUI, navigate to **Operators** and click the **Create new operator** action link.

Complete both operator and user fields on the Create Operator page.

### Create Users Only

For application users who do not sign onto Talkman devices, create a user account that is not linked to an operator record.

Each application GUI **user** must have a unique username and must be granted at least one role.

HOW TO:

In the Administration section of the GUI, navigate to **Users** and click the **Create new user** action link.

Create a separate user record for all non-operators who will use the application. When a user configures the application by adding or removing columns, applying filters, etc., these changes are saved for that user.

Refer to the VoiceCheck Online Help for more information about creating or editing roles and users.

### Create a Web Services User

If the assignment data imports from the host system, create a user for the host system to access VoiceCheck.

Assign the web services user a role that grants the Execute Web Services permission.

# Setting Up User Authentication

VoiceCheck can be set up to authenticate users who are signing into the system against a directory server such as LDAP or Active Directory.

1. Sign into **VoiceCheck**.
2. In the **Administration** tab, navigate to **System Configuration**.
3. Click the **Edit System Configuration** action link.
4. Select the **Authenticate users against directory server** option to enable users to log into the application using their directory server password. When selected, the following fields are displayed to configure associated parameters:

   **Host**: Enter the hostname or IP address of the directory server.

   **Port**: Enter the port on which the directory server is listening for connections.

   **Search User Distinguished Name**: Enter the username (name of the user object and its container location within the directory) of a trusted user who has search permission on the directory server. This is not required because many LDAP servers support anonymous directory server binding.

   **Search Base**: Enter the location within the directory server to begin a user search.

   **Searchable Attribute**: Enter the attribute on the directory server that maps to the username of a user entered in the application. This may be uid, sn, or another attribute, depending on the directory server setup.
5. Once this information is specified, enter a username in the **Test User Name** field and click **Test Directory Server Connection Information** to test if the system is able to validate a user's username and password on the directory server.
6. Click **Save Changes**.

# Setting Up the Export Web Service

VoiceCheck uses a host system web service to post inspection assignment results. You must set the URL and, if required, turn on authentication in the user interface so that VoiceCheck can transmit data successfully.

HOW TO:

In the Administration section of the GUI, navigate to **System Configuration** and click the **Edit System Configuration** action link.

Specify the connection parameters:

- **Service Endpoint**: Enter the URL for the web service endpoint for services provided by the host system. This is a required field.
- **Client Type**: Choose REST or SOAP web services for all data transmission between VoiceCheck to the host system

- **Requires Authentication**: Check this option if access to the service endpoint requires a username and password, then supply the credentials in the appropriate fields.
- **Export Settings**

  **Allow Auto Export**: Check the box to post results to the host system as soon as an assignment is completed. Uncheck the box to require the user to submit assignments manually.

  > NOTE
  > Click **Manage exports** from the VoiceCheck tab to stop or start exporting. Exporting starts upon server reboot.

  **Export mode**: Choose PUSH or PULL from the drop-down box. PUSH assignment exports send data to the host system when assignment data is ready. PULL assignment exports allow the host system to call the server to get the data. There are three REST web services available to PULL data from assignment exports, Data Transmission.

# Setting Up a Transcription Server

## System Requirements

Honeywell recommends the following hardware and operating system requirements for systems to run a transcription server.

- 64-bit Windows Server 2012 or 64-bit Windows 7
- One 2.5Ghz CPU core
- 12GB RAM for the first transcription server instance plus an additional 4GB RAM for each additional transcription server instance

## Initial Setup

1. Download and install the latest version of Java 8 JRE using the default setup prompts.
2. Download and install the Latest Tomcat 7. Allow the installer to create a Windows service. The Tomcat installation directory is `CATALINA_HOME`.
3. Unzip `TranscriptionServerReleaseR1.6.zip` to the location of choice. This creates a `\transcription_server-1.6` folder. Refer to this folder as `TS_HOME`.

   > TIP
   > Honeywell recommends using the C:\ drive to save configuration time.

4. Add %TS_HOME%\TranscriptionServer\WEB-INF\classes to the system PATH environment variable.
5. Run the following installers included in the zip package:

- vcredist_x64.exe – C++ runtime
- w_ccompxe_redist_intel64_2015.4.221.msi

## Transcription Models

A transcription server "model" refers to the combination of language and domain that a transcription server uses to transcribe the audio input. For example:

- You want to transcribe the recorded audio from US English news broadcast. The model would be US English for the language and News Broadcast for the domain.
- You want to transcribe the recorded audio from Latin Spanish Trucking. The model would be Latin Spanish for the language and Trucking for the domain.

### Industry Language Models

The following industry language models are currently available:

| Domain | Language |
|---|---|
| Generic | English (US) |
| Generic | French Canadian |
| Generic | German |
| Generic | Latin American Spanish |
| Aerospace | English (US) |
| Trucking | English (US) |
| Trucking | French Canadian |
| Trucking | Latin American Spanish |

## Configure the Transcription Server

You must configure a separate instance of the Transcription Server for each model that you want to support. Configure multiple instances of the server for a single model if you wish to increase the transcription throughput for that language. Complete the following steps to configure a model instance.

1. Create a context.xml file in %CATALINA_HOME%\conf\Catalina\localhost. An example context.xml file for each language model is included in the distribution. If only a single transcription server instance is required, copy the example file as is.
   Otherwise, copy and rename the file. For example, copy enUS_Generic_1.6_m2_1.xml to enUS_Generic_1.6_m2_1.xml and enUS_Generic_1.6_m2_2.xml to configure multiple

instances.

> **IMPORTANT**
> Verify that the server meets the RAM requirement to run the requested number of instances.

2. If you did not unzip to `C:\` in step 3 above, edit each file and change the docBase, modelFolder, uDataFolder, and waveFile attributes to `TS_HOME`. For example, change `docBase="C:\TranscriptionServerReleaseR1.6"`to `docBase="<your TS_HOME location>"`
3. Restart the Tomcat service.
4. Verify that each instance is responding at the specified URL.

   **Example**: Type `http://yourhostname/enUS_Generic_1.6_m1` into the browser, with `enUS_Generic_1.6_m2`being the name of the xml file you created in step 1. This assumes that you configured Tomcat to listen on port 80, which is the default. Otherwise, include the port chosen in the URL. The response from the server should look something like this:

```
<transcription>
<id>0</id>
<creationTimestamp>2016-10-13T14:57:10.519Z</creationTimestamp>
</transcription>
```

Next, configure the VoiceCheck server to connect to this Transcription Server as explained in Setting Up a Transcription Service Endpoint.

## Setting Up a Transcription Service Endpoint

VoiceCheck includes a built-in transcription engine for transcribing VoiceNotes and memos. This engine supports only a basic, generic English vocabulary. The external server can support either English, German, French Canadian, or Spanish language transcriptions. Honeywell recommends you use an external transcription server with customizations for inspections that employ industry-specific vocabulary.

Separate transcription services may be available for VoiceCheck. Ask your Honeywell representative for information.

If you install a custom transcription service on one or more servers, you must configure transcription service endpoint(s) so that VoiceCheck can properly submit and receive VoiceNotes via a REST web service.

**HOW TO**:

In the Administration section of the GUI, navigate to **System Configuration** and click the **Edit System Configuration** action link.

In the Transcription Service Settings, specify the service endpoint addresses.

- Transcription Service Endpoints: Enter each URL for the web service endpoint on a separate line. The web service connection may be secured (HTTPS) or not (HTTP).

To accommodate support of multiple languages and redirection based on language code, specify a locale in the URL and the VoiceCheck system will replace the token in the URL with the appropriate locale. If the token is not specified in the URL, all notes will go to that URL as before.

**Example**:

http://TranscriptionServer:8089/transcription/{locale}_Generic_1.6_m1

or

http://TranscriptionServer:8089/{locale}/transcription

> IMPORTANT
> To accommodate multiple languages, the transcription service for each language must either be running on the same host under different URLs, or the host names must contain the language code.

> NOTE
> If a VoiceNote or memo is being transcribed when a transcription server experiences a failure, that transcription will not complete until the server is restored. In an implementation with multiple transcription servers, the affected transcription does not fail over to another node.

## Setting Up Job Schedules

Schedules define when system processes should run. Define a different schedule for each process. So, you may specify for one process to happen every five minutes, while another process may run once daily or weekly.

If several of these operations run simultaneously, the system-wide performance may diminish. You should consider scheduling some of these jobs (for example, the VoiceCheck data purge and external database maintenance jobs) to run during off hours or non-peak times.

Refer to the VoiceCheck Online Help for more detail about setting job schedules.

## Setting Up Email Notifications

Set up VoiceCheck to email critical notifications to specific users.

**HOW TO**:

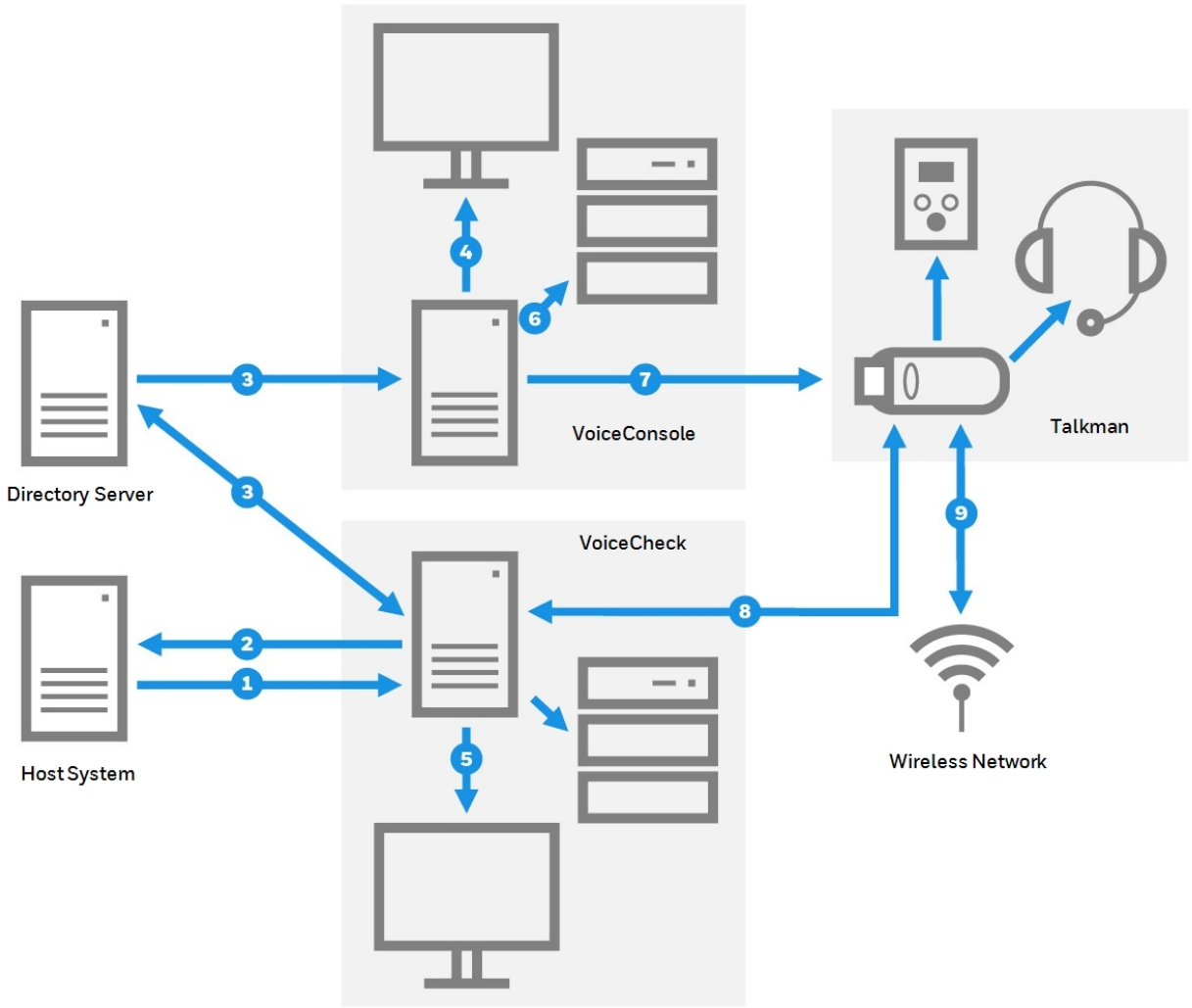
1. Assign all relevant users to a role that grants the ability to view notifications.
2. Add email addresses to the appropriate user accounts.
3. In the Administration section of the GUI, navigate to **System Configuration** and click the **Edit System Configuration** action link.

4. Enter the outgoing SMTP host information.
5. If the host requires authentication, enter the user name and password.

## Security Considerations

VoiceCheck provides support for several methods of securing data communication. The following section shows how to configure the solution to use secure methods of transmission.

## Options for Securing the Implementation




**Voice Inspection Solution Security Options**

1. **Assignment import** – an inbound web service transmission from the host system to VoiceCheck. Secure this data by configuring a server certificate on the VoiceCheck server and using an HTTPS inbound URL.

2. **Results export** – an outbound web service transmission from VoiceCheck to the host system. Secure this data by configuring a server certificate on the host system and enabling HTTPS authentication in the **Post Assignment Results Web Service Settings** on the **System Configuration** page of the VoiceCheck GUI.

   **Results import** – an inbound web service transmission from the host system toVoiceCheck. Secure this data by configuring a server certificate on the VoiceCheck server and using an HTTPS inbound URL.

3. **User authentication** – an option to use an existing directory server to authenticate VoiceConsole and VoiceCheck users. Set this option on the **System Configuration** pages of VoiceConsole and/or VoiceCheck.
4. **VoiceConsole web pages** – the GUI pages served from Apache Tomcat to the client browser. Secure the web pages by selecting the **Enable HTTPS Support** option during the VoiceConsole installation and entering the certificate keystore information in the Tomcat configuration file.
5. **VoiceCheck web pages** – the GUI pages served from Apache Tomcat to the client browser. Secure the web pages by selecting the **Enable HTTPS Support** option and entering the certificate keystore information during the VoiceCheck installation.
6. **VoiceConsole Embedded Database** – a ***remote*** connection to an embedded database can be configured to use SSL (Secure Socket Layer) encryption. Secure this remote connection by installing a certificate and modifying a number of properties in the Apache Tomcat database.properties file. This option is not available for Microsoft SQL Server or Oracle databases and is not necessary for databases deployed on the same physical machine as the application server. See the VoiceConsole Implementation Guide for details.
7. **VoiceConsole device communications** – wireless communications secured by WEP, WPA or WPA2 protocols, and data transmission from Talkman devices to VoiceConsole secured by HTTPS. Set both security options in **Device Profiles** in VoiceConsole.
8. **VoiceCheck device communications** – data transmission between Talkman devices and VoiceCheck secured by Transport Layer Security (TLS/SSL) encryption. Install a certificate on the VoiceCheck application server, then select this option when creating a **Task Package** in VoiceConsole.**Wireless network authentication** – an option to deploy Extensible Authentication Protocol (EAP) to define data message formats for secure wireless communications among Honeywell solution components. Configure EAP on a site-wide basis by modifying the site in VoiceConsole.

Other communications shown in the graphic have security options that are not controlled within VoiceCheck. The VoiceCheck database should be deployed on the same physical network segment as the VoiceCheck application server, so wired network security can protect this data transmission as well as data sent between VoiceConsole and its local database. The Talkman device connects to a display device using HTTP and to SRX3 headset via Bluetooth v5.

## Encryption and Authentication in VoiceConsole

VoiceConsole offers various options for securing the user interface, network communications, and device communications. Honeywell recommends combining encryption with a protocol that

supports authentication methods to keep the networks secure.

- To secure web server communications, enable HTTPS during the installation, then obtain and install a certificate.
- To secure communication between VoiceConsole and Talkman devices, enable HTTPS in the device profile.
- To authenticate device connectivity on a wireless network, enable Extensible Authentication Protocol (EAP).
- To secure a wireless network with encryption, enable Wired Equivalent Privacy (WEP) or Wi-Fi Protected Access (WPA/PSK or WPA2/PSK).
- To verify users by authenticating logons against a directory service, enable LDAP support in System Configuration.

See the VoiceConsole Implementation Guide for more information.

## Encryption and Authentication in VoiceCheck

VoiceCheck has secure options for data transmission between the application server and the user interface, the Talkman devices, and the host system.

- To secure web server communications, obtain and install a certificate, then enable HTTPS during the installation.
- To secure device communications, enable TLS/SSL in the task package.
- To secure access to a SOAP or REST web service on the host system for data exports, enable HTTPS basic authentication in System Configuration. The password is encrypted and stored in the VoiceCheck database.
- To verify users by authenticating logons against a directory service, enable LDAP support in System Configuration.

## HTTPS and TLS/SSL

Hypertext Transfer Protocol Secure (HTTPS) is a networking protocol that secures web- or browser-based transactions over a network that is not secure. All HTTPS user connections are encrypted with digital certificates which tell the browser to use encryption to protect data transmissions.

This protection is effective only if the browser verifies a certificate as valid and issued by a trusted authority. Therefore, you must ensure that server certificates are installed correctly and the browsers used for VoiceConsole and VoiceCheck administration are configured to accept the certificates.

Transport Layer Security (TLS), commonly referred to as Secure Sockets Layer (SSL), is an encryption protocol that uses a public key infrastructure to secure data communications between a server and client. Like HTTPS, TLS/SSL requires that a certificate is installed on the server and a specific network port for secured transmissions to Talkman devices or a remote VoiceConsole embedded database.

If you are configuring the implementation for any of the HTTPS or SSL options, the following components are needed. See HTTPS Certificate Installation for more information.

- Java keytool utility to create a certificate request
- A signed certificate, that includes all intermediate certificates if any exist

### Supported Authorities

Honeywell software supports the following certificate signing authorities.

- COMODO Certification Authority
- Cybertrust Educational CA
- DigiCert Global CA
- DigiCert High Assurance CA-3
- Entrust Certification Authority - L1B
- EssentialSSL CA
- GlobalSign Domain Validation CA
- GlobalSign Organization Validation CA
- Go Daddy Secure Certification Authority
- Microsoft Internet Authority
- Microsoft Secure Server Authority
- Network Solutions Certificate Authority
- Starfield Secure Certification Authority
- Thawte SGC CA
- VeriSign Class 3 Extended Validation SSL CA
- VeriSign Class 3 Extended Validation SSL SGC CA
- VeriSign Class 3 Secure Server CA
- VeriSign Class 3 Secure Server CA - G2
- www.verisign.com/CPS Incorp.by Ref. LIABILITY LTD.(c)97 VeriSign

## Failover and Recovery

In the event that VoiceCheck or another component of the implementation becomes unresponsive or shuts down unexpectedly, you may need to initiate data and application recovery procedures. A failover configuration could help prevent periods of system unavailability or data loss.

## Recovery Steps with no Automated Failover

If VoiceCheck becomes unresponsive, stop and restart the VoiceCheck service (or the Apache Tomcat server, also listed in services).

If this is unsuccessful, shut down and restart the machine hosting the server and verify that the VoiceCheck service successfully started. You should also verify that the database is up and available.

> **WARNING**
> If your VoiceCheck database service goes down or requires a restart, you ***must*** also stop the VoiceCheck application service. Start the application service again only after the database is fully up and running.

## Preventative Steps

### Backing Up, Restoring, and Maintaining the Database

VoiceCheck does not come with any built-in ability to back up the database. Honeywell strongly recommends that you schedule regular database backups. If a disaster occurs in which the database is corrupted or no longer available, restore a previous backup to use.

> **WARNING**
> If regular backups are not performed, the transaction log file will continue to grow and may eventually cause application problems.

## Connecting VoiceCheck to a Different Database

If you need to bring up a redundant database, ensure that all database information for the redundant database is the same as the original database. Then, perform the following steps to associate VoiceCheck with the new database.

1. On the server machine go to *<TOMCAT HOME>\webapps\VoiceCheck\classes*.
2. Open the file **database.properties** using a text editor.
3. Update the URL information in the following properties with the new host name of the redundant database.

   ```
   hibernate.connection.url
   hibernate.connection.username
   hibernate.connection.password
   archive.hibernate.connection.url
   archive.hibernate.connection.username
   archive.hibernate.connection.password
   ```

4. Save the file.
5. Restart Apache Tomcat server.

TIP
The archive properties are not currently used, but you should update the URL information to maintain consistency.

IMPORTANT
The current passwords will be encrypted. Simply type the new passwords in plain text, and they will automatically be encrypted when the Tomcat server and VoiceCheck are restarted.

### Using a Secondary VoiceConsole Server

If your production VoiceConsole server becomes unavailable, you might have to switch temporarily to use a secondary or development implementation of VoiceConsole until the production machine is restored. As with VoiceCheck, create a failover configuration for VoiceConsole. Install an instance of the VoiceConsole server on multiple machines that communicate with the same database. See the VoiceConsole Implementation Guide for more information.

In any scenario where a new VoiceConsole server is brought online, you have to load a new configuration file (device profile) to each Talkman A730x device so it can connect and communicate with a different instance of VoiceConsole. To deploy new configurations, load it on a single device via USB cable, then use TouchConfig to deploy the configuration to the rest of the devices. See VoiceConsole Online Help for information on loading profile through a cable.

### Reporting a Disaster

Be sure to report any incidents where your VoiceCheck application becomes unresponsive or shuts down unexpectedly. Send your logs to Honeywell. Retrieve them from the user interface on the **Administration > Logs** page, and by default, the log files are stored in the following directory:

- *<InstallationDirectory>\logs*

# Uninstalling VoiceCheck

When you uninstall the system, you have the option to either keep or delete the data stored in the application.

The uninstall procedures below are applicable to systems that are installed either by the installation user interface or via the silent install process.

### Uninstalling a Non-Clustered Installation

For Windows systems where *only* VoiceCheck is installed:

1. Open the Windows **Start** menu.
2. Select **Settings > Control Panel**.
3. Double-click **Add or Remove Programs**.

4. Select Vocollect Enterprise Products in the list.
5. The uninstall application will start. Click **Uninstall**.

Or, for windows systems where *both* VoiceCheckand VoiceConsole are installed, run the uninstall application as an administrator. Find the application here:

<InstallDirectory>/Uninstaller/uninstall.bat

> CAUTION
> Do ***not*** run any uninstaller executable file (.exe) that may appear in the same or similar location. This file is only a part of the uninstall program and will not remove the application.

For a VoiceConsole Linux installation, execute the uninstall application found here:

<InstallDirectory>/Uninstaller/uninstall.sh

You may have to manually remove any desktop shortcuts to VoiceCheck after uninstalling the application.

### Uninstalling in a Clustered Environment

When you uninstall the application in a clustered or load-balanced environment, you must uninstall each node individually. Do not remove data until the last node is uninstalled. When you are prompted to remove data from the database, any additional nodes onto which VoiceCheck has been installed will no longer function correctly.

If you are uninstalling an instance of VoiceCheck that was installed in a clustered server environment, the uninstaller will not remove files from the shared files directory. To completely remove VoiceCheck, you must manually remove all files from the shared directory. The shared directory will contain:

- Some properties files that contain information that each installation node uses.
- Indexing (search-related index files)
- Log directory (optional)

# Solution Implementation Checklist

| Infrastructure | |
|---|---|
| ☐ | Acquire server, workstation hardware |
| ☐ | Acquire Database software |
| ☐ | Order Talkman A700x series or Android devices |
| ☐ | Order SRX3 Wireless Headsets |

| Infrastructure | |
|---|---|
| ☐ | Order chargers |
| ☐ | Determine architecture model: decentralized/centralized, multi-server, multi-site |
| ☐ | Determine number of servers, server specifications |
| ☐ | Determine clustered server configuration if necessary |
| ☐ | Prepare network configuration and ports, network specifications |
| ☐ | Determine server locations, physical security |
| ☐ | Determine workstation locations |

| VoiceConsole and Devices | |
|---|---|
| ☐ | Plan security options |
| ☐ | Obtain and install HTTPS certificate if needed |
| ☐ | Create VoiceConsole database |
| ☐ | Install VoiceConsole |
| ☐ | Import license file |
| ☐ | Create sites |
| ☐ | Create roles, users, operators |
| ☐ | Configure wireless security, authentication if needed |
| ☐ | Configure email notifications if needed |
| ☐ | Create device profile |
| ☐ | Import task |
| ☐ | Create task package |

| VoiceConsole and Devices | |
|---|---|
| ☐ | Configure Talkman devices - device profile, task package |
| ☐ | Configure HTTPS certificate information in Tomcat if needed |
| ☐ | Hold technician training with paired devices, headsets |

| VoiceCheck | |
|---|---|
| ☐ | Plan security options |
| ☐ | Install HTTPS certificate if needed |
| ☐ | Create VoiceCheck database |
| ☐ | Install VoiceCheck |
| ☐ | Create sites |
| ☐ | Create roles |
| ☐ | Create operators/users |
| ☐ | Configure authentication if needed |
| ☐ | Configure export web service connection |
| ☐ | Configure transcription service endpoints |
| ☐ | Set up job schedules |
| ☐ | Configure email notifications if needed |
| ☐ | Create VoiceForm |
| ☐ | Test web services integration between VoiceCheck and the host system |

# HTTPS Certificate Installation

If you want to secure any VoiceConsole and/or VoiceCheck communications, you need to obtain and install one or more HTTPS certificates. The following steps can assist you with those tasks.

# Creating a Certificate Signing Request

To create a certificate, you must first create a certificate signing request.

1. Copy and paste the following command into a terminal session on the machine where the Java keytool is located. The command assumes that the Java keytool is installed on the server. Replace the variables that appear in bold with the applicable information.

   keytool -genkey -alias tomcat -keyalg RSA -keysize 2048 -keystore <*keystorePath*>/.keystore -dname "CN=<*Domain name of server*>, O=<*Your Organization*>, OU=<*Organizational Unit*>, L=<*City*>, ST=<*State*>, C=<*Country*>"

   > **NOTE**
   > If you are running this command on Windows, paste it into the command prompt and ensure the JDK bin folder is in the PATH environment.

2. Press Enter.
3. Enter a keystore password.
4. Press Enter.
5. Copy and paste the following command, replacing the bold variables with the appropriate information.

   keytool -certreq -alias tomcat -file **<csrPath>/<csrFileName>**.csr -keystore **<keystorePath>**/.keystore

6. Verify keystore password.
7. Press Enter and complete the creation.

The Java keytool utility creates the private key and certificate signing request as <keystorePath>/.keystore and <csrPath>/<csrFileName>.csr.

# Getting a Certificate from a Certificate Authority

1. Send the files created by the Java keytool to a certificate signing authority. See Supported Authorities.
2. Purchase a certificate.

# Installing the Certificate

## From a Certificate Authority

1. Place the certificate file you received from a certificate authority into the directory where the private key and certificate signing request were saved.

2. Run the following command, replacing the bold variables with the applicable information. Keytool -import -trustcacerts -alias tomcat -file <certificateFileName>.p7b -keystore <keystorePath>/.keystore
3. A confirmation of installation appears.

### Updating a Certificate

If you need to renew or change a certificate, request the new certificate with the same alias and for the same server name. You only need to reinstall the certificate. No additional steps are necessary.

## Configuring Tomcat with Keystore Information

Your VoiceConsole installation with HTTPS support requires a manual configuration of keystore information.

The VoiceCheck installation process includes keystore value entry but the following procedure is necessary for any keystore modifications following the installation.

1. In a text editor, open the Tomcat **server.xml** file that is found here: *<installation path>\tomcat\conf*.
2. Find the **Connector port** element for HTTPS in the file. This entry includes the keystore parameters.
3. Update the location of the keystore file, the keystore password, and the keystore alias in the Tomcat connector definitions.

   **Example**:

   <Connector port="9445" maxHttpHeaderSize="8192" maxThreads="150" minSpareThreads="25" maxSpareThreads="75" enableLookups="false" disableUploadTimeout="true" acceptCount="100" scheme="https" secure="true" SSLEnabled="true" clientAuth="false" sslProtocol="TLS" sslEnabledProtocols="TLSv1, TLSv1.1, TLSv1.2" **keystoreFile="C:\security\certtest.jks" keystorePass="talkman" keyAlias="certtest"** compression="on" compressionMinSize="1024"/>

   > **NOTE**
   > In the VoiceConsole file, there are two connector definitions that require the keystore information—the connector definition for HTTPS and the connector definition for COMET.

4. Save the file.
5. Restart the Tomcat service.
   - For VoiceConsole, the service is **VoiceConsole Service**.
   - For VoiceCheck, the service is **VoiceCheck Service**.
6. Refresh your browser to view the application.

# VoiceCheck 1.8 and Later Functionality

VoiceCheck 1.8 and later utilizes the Honeywell Guided Work foundation. With this implementation, there are some changes in functionality that will be noticed in the Maintenance and Inspection app.

| VoiceCheck 1.7 and earlier | VoiceCheck 1.8 and Later |
|---|---|
| In Voice Mode, if the operator taps the Pause button on noise sample and then clicks device/app back button, "Disable Voice Recognition" popup is displayed. | "Disable Voice Recognition" popup is not implemented. Operator can enable/disable Voice Recognition before Login from the Settings page. |
| On the Section Summary screen, operator can directly select a step. | On the Section Summary screen, user can start section only with Ready button. Step selection is disabled. |
| For Record Memos and VoiceNotes, recording starts immediately as soon as the operator lands on the respective screens. (This is configuration based) | Operator has to speak "Ready" or click "Start Recording" button to start recording. |
| Error Messages are displayed on a separate screen. | Error Messages are displayed on the intent screen. |
| On Login screen, the label is Operator. | Label is UserID on Login screen. |
| Details Command works globally throughout the app. | Details command will only work on VoiceForm steps. |
| Retraining is done via Help screen on the Hamburger menu or by speaking the "I need help" command. | New voice Update Train implemented. Speak "Control Update Train" to retrain vocab words. |
| Test Boxes for Report Problem and Notes support 255 characters and a character count is displayed. The character counter color turns red and the count starts increasing in -ve once 255 limit is reached. | No character limit is set. |
| On Text tab on the Notes step, enter button saves the text note. | On Text tab on the Notes step, enter button is used for segregating between the current and new text note. |
| Only .bt2 template types are supported. | Support for new template types .SRXAND_2 has been implemented when training templates on a Honeywell Android device using SRX3 headsets. |
| Report Problem voice command is supported. | Report Problem voice command has been removed. Tap on Report Problem from the 3 dot menu. |
| Cancel button is on some screens across the app. | Cancel button is removed and added as an option on the 3-dot menu. |
| Float value recognizes 3 digits before the decimal place. | Float value recognizes 5 values before the decimal place. |

| VoiceCheck 1.7 and earlier | VoiceCheck 1.8 and Later |
|---|---|
| Languages supported: English (US), Spanish (Latin America), Spanish (European), German, French (Canadian). | Languages supported: English (US), Japanese, Spanish (Latin America), Spanish (European), German, French (Canadian), French (French) , Dutch (Netherlands). |
| Mute functionality to mute and unmute the app. | To be implemented in future releases. |
| Operator Profile/Configuration screen. | To be implemented in future release. |
| Operator Specific Vocab Thresholds. | To be implemented in future release. |
| Operational Acuity Integration/Labor Tracking. | To be implemented in future release. |
| Configuration file for download. | To be implemented in future release. |
| Detailed Help . | To be implemented in future release. |
| No more button is disabled when there are no voice notes recorded/entered. | No more button is enabled when there are no voice notes. On trying to proceed to next screen without recording/entering text/voice notes an error message is displayed on the screen. |
| Spell tags not implemented. | Spell tags implemented. |
| One voice note at a time is reviewed at the end of assignment. | All voice notes are shown at once in case of review at the end of assignment. |
| Settings option. | Some options to be implemented in future release. |

CHAPTER

3

# SYSTEM MAINTENANCE AND PROTECTION

This section contains guidelines for protecting your VoiceCheck implementation and data.

Honeywell strongly recommends that your IT staff develops and implements a disaster recovery plan specific to your company's needs.

**WARNING**
If your VoiceCheck database service goes down or requires a restart, you ***must*** also stop the VoiceCheck application service. Start the application service again only after the database is fully up and running.

**WARNING**
Please note that restarting or otherwise interrupting the VoiceCheck server during inspection operations can lead to excessively long restart times and may necessitate restarting the devices connected to the server. This may lead to data loss and loss of all assignment data currently on the device. Honeywell recommends that software updates and other maintenance be scheduled when the VoiceCheck system is not being actively used for inspections.

## Changes to Master Data and VoiceForms

When changes are made to a host system's master data, corresponding edits will need to be made to the VoiceForms for any affected sites. For example, the step IDs found in the VoiceForms must be kept in sync with the assignment data sent to VoiceCheck from the host system. See the Honeywell VoiceCheck Online Help for more information on VoiceForms.

**TIP**
Users on VoiceCheck 1.7 or above should use VoiceForm versioning. See Create and Edit VoiceForms in Honeywell VoiceCheck Online Help and VoiceForm and VoicePlan Web Services for more information on how to create VoiceForm versions.

The following chart shows how to address some common changes.

| Data change | You need to . . . |
| --- | --- |
| Changing prompt phrases and help messages | • Edit the VoiceForm steps at any time to modify these phrases.<br>• Note that changes may confuse a technician who reviews previous responses with new prompt wording. |
| Editing existing response option words for multiple list selection prompts | • Edit the List Item Group to modify these items as long as the Items Key (Group Code) does not change.<br>• Note that an existing group cannot be modified if it is referenced by VoiceForm step. |
| Adding a new response option to an existing list | • Edit the List Item Group to add another item code and text value.<br>• Note that an existing group cannot be modified if it is referenced by VoiceForm step.<br>• Ensure that the host system is updated to expect the new value. |
| Adding a new inspection check | • Add the step information in the **createAssignment** web service message and import to VoiceCheck.<br>• Add the step with the correct step ID to the VoiceForm using the VoiceForm Editor.<br>• If you define the new step with a multiple list selection prompt, edit the List Item Group to add the relevant response options with a new item code.<br>• Note that an existing group cannot be modified if it is referenced by VoiceForm step. |
| Adding completely new materials to be inspected by your technicians | • Create any new steps needed with the correct step IDs to the VoiceForm using the VoiceForm Editor.<br>• Edit the List Item Group to add new response options with new item codes if you define any new steps with multiple list selection prompts.<br>• Note that an existing group cannot be modified if it is referenced by VoiceForm step.<br>• Use the **createAssignment** web service message to import all required data for the new inspection plan to VoiceCheck. |

| Data change | You need to . . . |
|---|---|
| Correcting misspoken prompts | • See the Honeywell VoiceCheck Online Help for more information. |
| Changing a step ID | • Create a new step instead and save your VoiceForm<br>• Leave the original step in place until it is no longer referenced by any assignments in the system.<br>• Update web service messages to include the new step where needed. |
| Changing prompt types, conditions, or display IDs within a step | • Wait until all assignments are completed, exported, and purged from VoiceCheck. This method ensures that the step is no longer referenced by any assignments in the system.<br>• Edit the VoiceForm to make the necessary modifications.<br>• If the step you want to modify is referenced by another step in a condition statement or display setting, the prompt type cannot be changed. |
| Deleting a step | • Wait until all assignments are completed, exported, and purged from VoiceCheck. This method ensures that the step is no longer referenced by any assignments in the system.<br>• Select the step in the VoiceForm Editor, and click the **Delete selected steps** action link.<br>• A step cannot be deleted if it is referenced by another step in a condition statement or display setting.<br>• Save your VoiceForm files and import them to the proper location on the VoiceCheck server. |

**CAUTION**
Be extremely careful when changing or deleting information in a VoiceForm. Missing data can cause VoiceCheck components to be out of sync and may result in the corruption of current and future assignments.

## Changing Purge Intervals

VoiceCheck checks for data that must be purged from the database according to schedules set up for these processes in the **View Schedules** page. See Setting Up Job Schedules for more information about how to change how often these processes are run.

Different types of data are purged according to different time intervals. Modify these intervals in the **System Configuration** settings. Refer to the VoiceCheck Online Help for more detail about editing the system configuration.

### Considerations for Purge Intervals

Data usage and retention policies are specific to particular needs, so when optimizing the VoiceCheck database purge intervals, consider the following factors.

- Data storage and retention in a system of record. With a solid policy for host system data, treat VoiceCheck data as temporary for active assignments and near-term troubleshooting only.
- Retention of VoiceNotes and memos results. VoiceNotes and transcription performance may require continued analysis by Honeywell. Purged VoiceNotes and memos cannot be recovered.
- Amount of available hard drive and database space.
- Average number of assignments per day or week and size of assignment data.
- Average number of VoiceNotes and memos recorded per assignment.
- Number of users.

For a usage scenario based on 500 technicians completing three 300-step assignments per user per day and five recorded VoiceNotes or memos per assignment, a twice weekly purge should be more than adequate. For a higher volume of VoiceNotes and memos per day, consider purging assignments more frequently since audio files take longer to purge and VoiceNotes and memos are not purged until the associated assignments are purged. These scenarios assume that the server and database meet the minimum system requirements.

Monitor the system for a few weeks to analyze data size and purge job run time and determine the optimal purge schedule.

## Database Maintenance

Honeywell recommends that you run a full backup of your VoiceCheck database daily during off hours. Along with the backup job, you should backup the transaction log and rebuild all database indexes.

If you support more than 500 technicians, you may need to perform special maintenance on the **core_assigment** and **core_assignment_check** database tables. Honeywell recommends reorganizing the index based on the volume of assignments and steps and the rate of transactions performed on these tables.

SQL Server provides tools to configure these maintenance jobs and has an index report for monitoring the health of database indexes. This report can help you determine the frequency at which the indexes should be reorganized or rebuilt.

Honeywell recommends that a database administrator monitor the system during the first week of heavy use to determine an optimal indexing strategy.

WARNING
If your VoiceCheck database service goes down or requires a restart, you ***must*** also stop the VoiceCheck application service. Start the application service again only after the database is fully up and running.

# System Configuration

This page displays system configurations that apply to the entire installation of VoiceCheck across sites.

From the **System Configuration Actions** list in the navigation bar, edit the system configuration.

## Editing System Configuration Properties

1. Navigate to **Administration > System Configuration** page.
2. Click the **Edit System Configuration** action link.
3. Modify the editable fields as needed, and click **Save changes**.

## Field Definitions

### SMTP Configuration

- **Outgoing SMTP Host**: SMTP host name. This is required to enable the application to email notifications to specified users.
- **Requires Authentication**: Check if the SMTP host requires authentication. If checked, you will be prompted to enter the following:
  - **SMTP User Name**: Enter the user name to log into the SMTP host.
  - **SMTP Password**: Enter the password associated to the SMTP user name.
  - **Verify Password**: Re-enter the password associated to the SMTP user name.

### User Authentication

NOTE
This section is not displayed when SSO authentication is enabled.

If you want users to log into the application with an application-specific password, do not check this option. If this option is unchecked, you must ensure that a password is entered for each user's record.

If you check this option, users can log into the application using their directory server password. When checked the following fields are displayed to facilitate this feature:

- Host: Enter the hostname or IP address of the directory server.
- Port: Enter the port on which the directory server is listening for connections.
- Search User Distinguished Name/Password: Enter the username and password of a trusted user who has search permission on the directory server. This is not required because many LDAP servers support anonymous directory server binding.
- Search Base: Enter the location within the directory server to begin a user search.
- Searchable Attribute: Enter the attribute on the directory server that maps to the username of a user entered in the application. This may be uid, sn, or another attribute, depending on the directory server setup.

## Post Assignment Results Web Service Settings

The connection parameters used to send results from VoiceCheck to the host system.

- **Service Endpoint**: Enter the URL for the web service endpoint for services provided by the host system. This is a required field.
- **Client Type**: Choose REST or SOAP web services for all data transmission between VoiceCheck to the host system.
- **Export to Interface**: Check this option if you want results data exported to flat, interface tables that can be queried for reporting purposes.
- **Requires Authentication**: Check this option if access to the service endpoint requires a username and password, then supply the credentials in the appropriate fields.
    - **User**: Enter the user name.
    - **Password**: Enter the password associated to the user name.
    - **Confirm Password**: Re-enter the password associated to the user name.

## Transcription Server Settings

The transcription service endpoints for transcribing VoiceNotes and memos.

Enter one or more URLs for the REST web service endpoints. Type each URL on a separate line. The connection can either be secured by a certificate (HTTPS) installed on the transcription engine server, or not secured (HTTP).

If this field is left blank, VoiceCheck will use the integrated transcription service.

## Android Settings

- **OpAcuity URL:** URL to proxy server for Operational Acuity data collection.
- **Use Operational Acuity:** Mode that enables Operational Acuity data collection.
- **Allow Multiple Assignments:**Mode that enables work on multiple assignments. Default is off.

## Export Settings

- **Allow Auto Export**: Check the box to post results to the Host system as soon as an assignment is completed. Uncheck the box to require the user to submit assignments manually.
    - Click **Manage exports** from the VoiceCheck tab to stop or start exporting. Exporting starts upon server reboot.
- **Export mode**: Choose PUSH or PULL from the drop-down box. PUSH assignment exports send data to the host system when assignment data is ready. PULL assignment exports allow the host system to call the server to get the data. There are three REST web services available to PULL data from assignment exports, Data Transmission.

## Password Expiration Settings

> NOTE
> This section is not displayed when SSO authentication is enabled.

- **Maximum Password Age (Days)**: The maximum number of days before a password expires.
- **Notification (Days)**: The number of days before password expiration to provide notification that password must be updated.

Entering 0 for either parameter value disables that parameter.

## Purging Data

Specify the amount of time that specific data remains in the system before the scheduled job will purge it. This group of rules affects the frequency of purging data for assignments, VoiceNotes, memos, photos, notifications, reporting data, and scheduler history.

Purging data that has or has not been exported to the host system depends on the associated assignments. Photos, VoiceNotes, and memos will not be purged if their assignments are still in the VoiceCheck system. Additionally, if the photos purge is set to less than one day, the purge will default to one day to allow time for photos to be associated with assignments that are in progress.

> NOTE
> System performance may degrade if you set this parameter to allow data to age more than 90 days before it is purged.

The VoiceCheck system currently only supports transactional data—data that is currently viewed in the GUI—and flat data tables for reporting. Purging this data removes the data from the system completely. This data can no longer be viewed in the application.

### Purging/Archiving Data

The schedule that specifies when data is purged or archived is specified on the Schedules page.

On the System Configuration page, specify the amount of time that specific data remains in the system before the scheduled Purge/Archive process will purge or archive it. This group of rules contains the specific rules that affect the frequency of archiving and purging data for Inactive Action Items, Device Messages, Closed Device Logs.

For transactional data, data that is currently viewed in the application tables, that has a Status of Enabled or Disabled, specify when the transactional data should be purged. Purging the transactional data removes them from the system completely. This data can no longer be viewed in the application.

# Troubleshooting

This section provides some advice about how to solve common problems that can be encountered when using and maintaining VoiceCheck.

See Notifications and Logs for information on device logging.

## Technician forgets to sign off

**Problem**: An assignment cannot be worked because it is associated with an operator who is not on the current shift.

**Likely Cause**: The technician working that assignment forgot to sign off.

**Resolution**: Sign off the technician via the **Operator** page in the VoiceCheck user interface. Select the technician's operator record on this page and click the **Sign off selected operators** action link.

## Technician prompted to retrain a word after template training

**Problem**: The technician completes the voice template training, and the device prompts the technician to retrain a word the technician attempts to run the voice application to begin working.

**Likely Cause**: The speech recognizer had difficulty deciphering a word during the initial training.

**Resolution**: Try retraining the word via the device menu. If needed, add another instance of this word, in a different word combination, to the embedded training list in the task package.

1. In VoiceConsole, click **Task Packages** in the navigation pane.
2. On the **Task Packages** page, select the task package containing the voice application, and click the **Edit selected task package** action link.
3. In the **Embedded Training** tab, find the entry(ies) that contain the problem word.

4. Add a new pair or trio of words at the bottom of the list, including the problem word and separating each word with spaces and pipe characters ( | ).

   Ensure that the new entry contains different word sounds than the existing entries with the problem word. This example adds an entry for the word "quarter."

   **Existing**: 2 | and | 1 | quarter

   **New**: 3 | quarter | ready

5. Click the **Add row** button to save the new entry.
6. Click **Save Changes** and reload the task package. See VoiceConsole Online Help for additional instructions.

## Technician receives "cannot load task" message

**Problem**: The device speaks the message, "cannot load task. Processing data."

**Likely Cause**: The technician has critical outstanding data that must be sent to the server but the data is unable to be sent because the network is down or the technician is out of range of the WiFi network.

**Resolution**: If the server is running fine, the technician should move back into range. If the problem continues, try turning the device off and on, reloading the task, or rebooting the device.

## The device keeps beeping

**Problem**: There is a delay in data transfer between the Talkman device and VoiceCheck.

**Likely Cause**: Network congestion or other problems are causing slowness or interruption in data communication.

**Resolution**: If there are no reported network problems at the location, the technician should wait a few minutes for the data transfer to complete. If the beeping continues, check device logs in VoiceConsole to diagnose the problem. See VoiceConsole Online Help for instruction on turning on device logging.

## The device cannot get data after a full charge

**Problem**: The Talkman device was left without a battery, or left uncharged to the point where the device battery was completely drained, and its clock battery ran down to empty. (The clock battery typically takes a few days to run down on a device with no battery charge.) After the device was fully charged again, the device cannot connect to VoiceConsole. A network time server is unavailable or not in use.

**Likely Cause**: A WiFi network problem is preventing data communication, or the SSL authentication has failed between the device and VoiceConsole. When a device's clock battery completely loses its charge, the device clock resets to January 2000 after re-charge and power on. When the device attempts to connect to VoiceConsole, the SSL validation fails because the device date is outside of the SSL certificate's date range.

**Resolution**: Ensure that the network time server is functioning and that the NTP option is checked and pointing to the correct server in the device profile. Add a date parameter to the device profile. Create a new device profile in VoiceConsole based on the existing device profile, and add the following parameter with a current date.

```
[HKEY_LOCAL_MACHINE\Software\Vocollect]
"DefaultDate" = "MM/DD/YYYY"
```

The system administrator should be able to determine the valid date range for the certificate that is in use.

## Host system rejects a data submission

**Problem**: The assignment results submitted from VoiceCheck to the host system returns an error message on the **Review and Submit** page of the user interface.

**Likely Cause**: The error message indicates the cause. Reasons for error include, but are not limited to:

- Another host system user has the data locked,
- The user trying to submit results does not have the appropriate permissions in the host system,
- One or more steps were completed by a user without the necessary permissions in the host system,
- One or more steps were already completed in a host system that only allows entering results one time for each step.

**Resolution**: Resolve access problems or data conflicts and have the technician attempt to submit results again. Otherwise, manual entry in the host system may be required.

## Photo file upload generates a system error

**Problem**: Technicians consistently experience problems when uploading images, and the system generates errors. The GUI displays "Error sending image, try again," and the system log reports Java heap space errors recorded as "OutOfMemoryError: Java heap space."

**Likely Cause**: The image file is larger than 10 MB.

**Resolution**: Use a photo capture device or a device setting that produces smaller photo files. Alternatively, increase the server's Java memory settings by performing the following steps.

1. Run the VocollectWebApplicationsVoiceCheckw.exe file in the bin folder of the Tomcat install under the Vocollect directory.
2. Click on the Java tab.
3. Add to the base Maximum Memory Pool setting.
    - A base 1024 MB recommended for small load implementations
    - A base 2048 MB recommended for up to 2500 workers

- Add an extra 1024 MB for the internal transcription engine
- Add extra memory for consistent large photo file uploads

4. Change the Initial Memory Pool setting as needed.
   - 512 MB recommended for small load implementations
   - 1024 MB recommended for up to 2500 workers
5. Set Thread stack size (1024 KB recommended).
6. Click OK to save the settings.
7. Restart the Tomcat service.

### VoiceNote transcription requests fail

**Problem**: Automated transcription is not working for VoiceNotes; there is no transcribed text appearing with the VoiceNote recordings on the **Review & Submit Assignment** page.

**Likely Cause**: The speech recognition engine may crash when the first client request after a restart contains an audio file without any human speech in it.

**Resolution**: Restart the transcription server.

The Vocollect Transcription Server is deployed as a standalone web service. The VoiceCheck server connects to this web service as a client and sends audio files for automatic speech-to-text conversion.

1. Log in to the host (VM or otherwise) that is running the Vocollect Transcription Server. (This procedure assumes a Windows operating system.)
2. Click **Start > Run** and type "services." Click Enter to open the services applet.
3. Locate and select the Vocollect Transcription Service.
4. Click on the **Restart** link. The service should restart quickly.

Restarting the transcription server should only result in a few seconds of downtime. During this time, automated transcription of VoiceNotes is not possible; however the VoiceCheck server should automatically resend all rejected requests. Only a slight delay in transcriptions should result from the restart procedure.

# Notifications and Logs

Both logs and notifications inform users of various actions that are taking place in the system and errors that may have occurred. VoiceCheck and VoiceConsole maintain system logs and provide notifications in the user interface.

- Notifications are messages that the application sends to alert users to various events. These messages can be viewed on the **Notifications** page, and critical notifications also appear in a colored banner at the top of the interface when they occur. The system can be configured to email critical notifications to specific users.

- To take responsibility for the resolution of a notification. acknowledge that notification. Other users can see who acknowledged the notification and when it was acknowledged.
- Logs track user activities in the application and are useful for analyzing unexpected situations or issues. View a list of logs that have been generated by the application on the **Logs** page, and save a log as a zip (compressed) file.

## Server Logs

Two types of logs are generated by Apache Tomcat and displayed in the **Logs** page. In most cases, you will not need to reference these logs.

The Honeywell-specific logs are preceded by "Vocollect" or "VoiceCheck" or "VoiceConsole." These are the logs typically referenced for troubleshooting. These logs are created using log4j. Learn more about log4j at the following sites:

- http://logging.apache.org/log4j/2.x/
- http://www.developer.com/open/article.php/3097221

See the Honeywell VoiceConsole Implementation Guide for details on VoiceConsole log files.

### VoiceCheck log

This log is named according to the following naming convention:

VoiceCheck.log.n

where n is the number of the log. The most recent log has no value for n, the next-most recent log has a value of 1 for n, and so on.

The VoiceCheck log contains all information logged according to the logging level set in the log4j configuration file. This level is set to INFO by default, which means it logs all information at a level of INFO or more critical.

### VoiceCheck Error Log

This log is a subset of the Honeywell log. It contains all information logged at a level of ERROR or more critical. This log is named according to the following naming convention:

VoiceCheck.err.n

where n is the number of the log.

## Logging Levels

Logs can be configured to record activities at one of the following levels, with TRACE being the least critical and FATAL the most critical:

- TRACE
- DEBUG
- INFO
- WARN

- ERROR
- FATAL

Logging configuration files set the logging level and the maximum size for logs. There are two logging configuration files, one for the Honeywell log and error log, and another for the Proxy log.

- The logging configuration file for the Honeywell log and the Honeywell error log is found here: <*installation path*>\Honeywell\apache-tomcat-<*version*>\webapps\VoiceCheck\WEB-INF\classes\log4j.properties

### Changing the Logging Level for a Log File

To change the logging level for one of these files, modify the threshold property and the root category. Examples of the affected parameters for each logging configuration file are shown below:

### Honeywell Log and Error Log

- log4j.rootCategory=WARN,voc

This parameter specifies that these logs will report all information at a level of WARN or greater. If you want to view the log files at a lower level, you must change WARN to a lower logging level.

- log4j.appender.voc.Threshold=INFO
  log4j.logger.com.Honeywell=INFO,voc_err

These parameters specify the logging level for the Vocollect log. It is set to INFO. To log information at a different level in this file, you must change both of these parameters.

- log4j.appender.voc_err.Threshold=ERROR

This parameter specifies the logging level for the Vocollect error log. It will log information at a level of ERROR.

### Changing the Maximum File Size for a Log File

To change the maximum file size for any of the logs, modify the maxFileSize property. An example is shown below:

- log4j.appender.voc.MaxFileSize=4MB

Change the number of rollover files (files with a .n extension) by changing this parameter:

- log4j.appender.voc.MaxBackupIndex=30

## Device Logs

Enable device logging in the VoiceConsole user interface to help troubleshoot problems and capture logs for Technical Support.

1. In VoiceConsole, select **Device Management > Devices**.
2. Select one or more devices in the table.

3. Click the **Manage devices > Enable logging for selected devices** action link.
4. After the issues have been captured, click the device name to view the device properties.
5. Export the log file from the View Device page.
6. Save the file and send it to Technical Support with relevant environment information:
    - Device and headset models
    - Date/time the issue first occurred
    - Frequency of the issue occurring
    - Impacts of the issue
    - Recent changes in the VoiceCheck environment

### Capture Device Logs

The fastest way to capture device logs for a specific issue is for the technician to speak the "Talkman report problem" command *when the problem occurs*. The system responds by sending a snapshot of the log file to VoiceConsole. The log can then be exported and sent to Technical Support.

To report a problem in Android, say **"I need help"** from any point in the application and select **Report a Problem**.

Reporting a problem sends logs from the device to the server. This includes:

**VoiceCheck logs**: all files contained in the `/sdcard/Vocollect/logs` directory. Sub-directories are not included.

**Android logs**: all files contained in the `/storage/IPSM/logger` directory.

> IMPORTANT
> The `/storage/IPSM/logger` directory is only available when the device logging is enabled. Enable device logging from the Android device's **Settings** menu.

### View Device Logs

Open the Administration tab and select **Logs** from the navigation bar.

From the **Log Actions** list in the navigation bar, **View Server Logs**, **View Device Logs**, or **Save As Zip**.

Clicking server or device logs enables the **View Logs** list. From here click the name of a log to view that log.

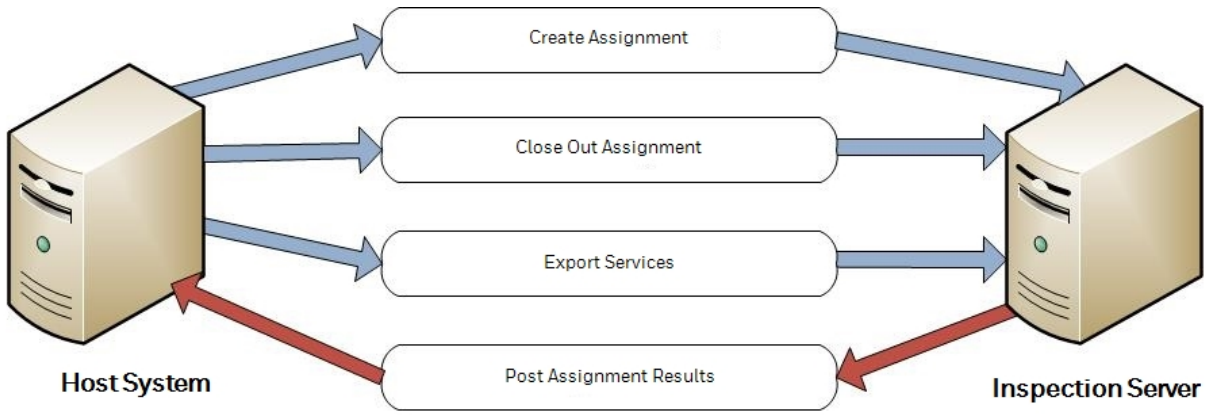
CHAPTER

4

# DATA TRANSMISSION

Web services are used to send transactional data between the host system and Honeywell VoiceCheck. VoiceCheck supports both SOAP and REST web services. These services provide the import and export functionality for the VoiceCheck system.

The services and message formats are described in detail below, and reference XML for the SOAP Web Service Description Language (WSDL) and REST Web Application Description Language (WADL) are provided in the product package. Descriptions of the services were previously viewable by entering **http://<host>:<port>/VoiceCheck/services/api/swagger.json** into the web browser. This link replaces the previously used link **http://<host>:<port>/VoiceCheck/services**.




**Web Services Message Flow**

## Configuration and Security

All communications are performed over HTTP or HTTPS, depending on the configuration of VoiceCheck.

For data import, all SOAP web services provided by VoiceCheck require authentication with WS-Security UsernameToken. All REST web services for import require authentication using HTTP basic authentication.

VoiceCheck has an access role, configurable in the user interface, which determines a user's permissions to execute web services. The host system's web service clients must be configured to authenticate with VoiceCheck web services as a user with this role.

For data export, VoiceCheck supports using HTTP basic authentication to access a SOAP or REST web service on the host system. Authentication is optional but if used, it is configured in VoiceCheck, and the password is encrypted and stored in the VoiceCheck database.

VoiceCheck also provides a method to configure the service endpoint URL for services provided by the host system. This endpoint URL is a required setting in the GUI.

There is only one user name and password used to consume all services that the host system exposes for VoiceCheck. Currently, only one service is exposed for VoiceCheck to post assignment results to the host system.

The configuration information (service endpoint, web service client type, user name, and password) is set at the system level in VoiceCheck. These settings can be found on the **Administration > System Configuration** page. The configuration assumes that one instance of VoiceCheck will connect to a single host system endpoint.

## XML Schemas and Namespaces

VoiceCheck declares a namespace for all XML elements used in SOAP and REST services, with the exception of the faultInfo element (see note below). The namespace is:

```
http://service.web.voicecheck.vocollect.com/
```

For SOAP services that VoiceCheck provides for data import, find the namespace and schema in the WSDL.

For REST services that VoiceCheck provides for data import, find the namespace and schema in the WADL. Note that for the Create Assignment Web Service, REST clients do not have to qualify the XML with the namespace; however it is highly recommended.

For the REST service that VoiceCheck consumes to post assignment results to a host system, the namespace and schema that the server expects to see in the XML are defined in the example WADL provided in the product package.

> NOTE
> The faultInfo element is not defined as part of a namespace. For REST services, VoiceCheck does not qualify the element with a namespace when sending it in an error response to a host system. Similarly, the host system ***must not*** qualify a faultInfo element with a namespace in a response to VoiceCheck.

## Fault Handling for Assignment Data

### REST Fault Handling

On failure, various HTTP status codes can be returned depending on the failure and where the failure occurred during processing. VoiceCheck makes use of the Apache® CXF framework for processing web services requests, and the framework can return errors during its processing such as 406 – Not Acceptable, or 415 – Unsupported Media Type, before the VoiceCheck business logic is reached.

Errors coming from the VoiceCheck business logic only have one of two status codes:

- 400 – Bad Request: The client has violated a business rule or constraint (usually bad data). Sending the message again without making a change to the content will result in the same error.
- 500 – Internal Server Error: There was an internal server error while processing the request. Retrying the message MAY result in success.

Also, errors coming from the VoiceCheck business logic include a faultInfo XML element containing additional information about the error that occurred. The properties of the faultInfo element are shown below.

## SOAP Fault Handling

SOAP 1.1 faults are returned for all errors. All faults contain a faultcode and faultstring as specified in SOAP 1.1. Two of the core SOAP 1.1 fault codes, Client and Server, are specified for most faults. VoiceCheck generally uses these codes in the manner described in the SOAP 1.1 specification.

There are errors that can occur during authentication that use fault codes specified in WS-Security (Web Services Security). The Java web services APIs and implementations may return other fault codes.

While it is not possible to list every fault code that may occur, there are general rules that can enable consistent handling of faults by web services clients:

- Fault codes other than Server typically mean that there is no point in automatically resending the message. They are sent when the client has done something wrong prior to the transmission reaching the application logic on the server, such as authentication failures or badly formed messages.
- When the fault code is Server, if the fault is coming from the application server logic, it will include the SOAP 1.1 fault detail element. The format is specified in the WSDL, but contains the information in the section below.

## Fault Info Element

Both REST and SOAP web services include the same error information when a fault comes from the VoiceCheck application server logic.

The host server REST implementation for post assignment results should use this fault info element in order to display the error message in the VoiceCheck GUI; otherwise, the user sees a generic message.

| Property | Type | Definition |
|---|---|---|
| errorCode | long | Numeric code representing the error.<br>Valid values:<br>3000 = Internal server error (request may or may not succeed on retry)<br>3001 = Bad request (automated request retry is not recommended) |
| message | string | Human readable message explaining the error. |

# VoiceForm Web Services

VoiceCheckexposes a web service that allows the creation of a VoiceForm—essentially a data import. This web service enables creating new VoiceForms as well as updating and deleting existing VoiceForms from the VoiceCheck server. When this web service is invoked, VoiceCheck validates the system for the following:

- If there is no matching VoiceForm name, a new VoiceForm is created.
- If there is a matching VoiceForm name, a new VoiceForm is not created.

A VoiceForm can be imported with or without any VoiceForm steps. This allows a technician to create the VoiceForm steps later, from the VoiceCheck server.

When VoiceCheck receives this message for reading, updating, and deleting of VoiceForms, the following validations are taken into consideration:

- If the VoiceForm name does not exist in VoiceCheck, no details are returned in the response.
- If the VoiceForm exists, the web service can update only the name of the VoiceForm.
- If the VoiceForm does not reference to any other entity in VoiceCheck, it can be deleted. Otherwise VoiceForm deletion is not permitted.

## Create VoiceForm Details

### REST Web Service

**WADL**: <http or https>://<host>:<port>/VoiceCheck/services/voiceform?_wadl

**URL**: <http or https>://<host>:<port>/VoiceCheck/services/voiceform

**Method**: POST

**Content-Type:** application/json;charset=UTF-8

**Message Body:** JSON as outlined in the schema in the WADL. The elements are described in the input elements table.

**Response**: On success, HTTP Status 200 with Payload “VoiceForm saved”. On failure, the system returns an error. Any HTTP status code other than 200 or 204 is considered an error. When possible, the host system should return a body for errors.

**POST Parameters**

A VoiceForm file with valid parameters in the body.

# READ VOICEFORM DETAILS

## REST WEB SERVICE

**WADL**: <http or https>://<host>:<port>/VoiceCheck/services/voiceform?_wadl

**URL**: <http or https>://<host>:<port>/VoiceCheck/services/voiceform/{voiceformname}

**Method**: GET

**Content-Type**: application/json;charset=UTF-8

**Response**: On success, HTTP Status 200 with or without a body. On failure, the system returns an error.

# UPDATE VOICEFORM DETAILS

**WADL**: <http or https>://<host>:<port>/VoiceCheck/services/voiceform?_wadl

**URL**: <http or https>://<host>:<port>/VoiceCheck/services/voiceform/update/{voiceformname}/{newvoiceformname}

**Method**: POST

**Content-Type**: application/json;charset=UTF-8

**Response**: On success, HTTP Status 200 with or without a body. On failure, the system returns an error.

# DELETE VOICEFORM DETAILS

**WADL**: <http or https>://<host>:<port>/VoiceCheck/services/voiceform?_wadl

**URL**: <http or https>://<host>:<port>/VoiceCheck/services/voiceform/{voiceformname}

**Method**: DELETE

**Response**: On success, HTTP Status 200 with or without a body. On failure, the system returns an error.

## Manage Images

### REST WEB SERVICE

**WADL**: <http or https>://<host>:<port>/VoiceCheck/services/imageService?_wadl

**URL**: <http or https>://<VoiceCheckIP>:<port>/VoiceCheck/services/imageService/<Directory/Folder Name><Directory/Folder Name>.....<photo filename with extension>

**Method**: GET

**Parameter**: image path in the file system with image name (parameter is sent in the URL)

**Content-Type**: (blank)

**Response**: On success, HTTP Status 200. When photo is not found, the service generates a WebAppplicationException with status HTTP Status 404 Not Found.

**Basic Authentication**: VoiceCheck User Name and Password

### INPUT ELEMENTS

| PROPERTY | TYPE | REQ'D | DEFINITION | VALIDATION |
|---|---|---|---|---|
| voiceformname | String | Yes | The name of the VoiceForm | Must be unique in VoiceCheck |

# VoiceForm Version Web Services

## Create VoiceForm Version

### REST Web Service

**WADL**: <http or https>://<host>:<port>/VoiceCheck/services/voiceformVersion?_wadl

A VoiceForm version can be created using 2 ways:

1. *Without* specifying the version number.

**URL**: <http or https>://<host>:<port>/VoiceCheck/services/voiceformVersion/import/

In this case the version the version required to be created is not specified in the URL. So the system will publish a new version and assign it number, which +1 of the last added version

2. With VoiceForm version number specified

URL: <http or https>://<host>:<port>/VoiceCheck/services/voiceformVersion/import/{voiceFormVersion}/

Here {voiceFormVersion} is specified and the system will publish the requested VoiceForm with the version number specified, only if it is available and not already assigned to any other version.

Method: POST

Content-Type: application/json;charset=UTF-8

Message Body: JSON as outlined in the schema in the WADL. The elements are described in the input elements table.

Response: On success, HTTP Status 200 with Payload “VoiceForm version saved”. On failure, the system returns an error. Any HTTP status code other than 200 or 204 is considered an error. When possible, the host system should return a body for errors.

POST Parameters

A VoiceForm file with valid parameters in the body.

## READ VOICEFORM Version

### REST WEB SERVICE

WADL: <http or https>://<host>:<port>/VoiceCheck/services/voiceformVersion?_wadl

URL: <http or https>://<host>:<port>/VoiceCheck/services/voiceformVersion/export/<FORMNAME>/<FORM-VERSION>

Method: GET

Content-Type: application/json;charset=UTF-8

Response: On success, HTTP Status 200 with or without a body. On failure, the system returns an error.

## INPUT ELEMENTS

| PROPERTY | TYPE | REQ’D | DEFINITION | VALIDATION |
|---|---|---|---|---|
| voiceFormVer | String | No | Version of VoiceForm existing in the system | If specified, the value must match an existing VoiceForm version. |

# Import/Export Operators

There are two REST web services available to import and export operator data.

# Import Operators

Input parameters:

- Operators.ZIP
- Site Name

Operators.ZIP can contain one or more folders. Each folder needs:

- OperatorId.json file
- Voice templates ZIP file that contains all the trained words of the operator

When importing a single operator, operatorId is the only parameter needed. No parameter is required when importing multiple operators.

Both new and existing operators can be created using REST.

## Response codes

**200 OK**: import of all operators was successful

**400 Bad Request**: content of the ZIP file is invalid

**207 Multi-Status**: some operators were imported and some were not. The error message contains information for all operators that were not imported.

# Export Operators

**URL (single operator)**: `http://serverip:port/VoiceCheck/services/operator/{operatorId}`

where `operatorId` is the login name of the operator; for example, operator `tsmith` would be: `http://serverip:port/VoiceCheck/services/operator/{tsmith}`

**URL (all operators)**: `http://serverip:port/VoiceCheck/services/operators/`

> **NOTE**
> To export more than one operator, but not all operators, call the export single operator rest service *n* number of times.

**Method**: (GET), Content Type (application/json;charset=UTF-8)

**Response**
Success: HTTP Status 200 with or without a body
Failure: the system returns an error

**Result**: A zip file containing the operator data.

### Content and format of Import/Export files

The file must be in ZIP format. The ZIP file contains the same number of folders as there are operators. For instance: if five operators are being imported or exported, the zip file would contain five folders, one for each operator.

Each folder contains:

1. An operator.json file: this file contains operator information including operator id, name, and email along with an encrypted password and access code. **Example**: ben.json
2. A zip file that includes all templates for that operator. The name of the zip file is "operatorID_templates.zip" (**Example**: ben_templates.zip)
    - This zip file contains .bt2 files, which are template files for the operator
    - Format for the name of .bt2 file would be "Language_operator_vocab.bt2" (For example: %en-US%_ben_alpha.bt2)

# Import/Export Steps

A REST web service is available to import and export steps.

## Import Steps

### MockServer

Steps can be imported into the VoiceCheck server using MockServer. To perform this action, copy the file from the examples directory (Steps.json) to Mock server\REST\Default\ImportSteps folder.

### CURL

Following command can be used to import steps into the VoiceCheck server.

```
curl -v -X POST http://serverip:port/VoiceCheck/services/steps/import/{voiceFormName} -F "steps-
s=@pathToJSONfile/abc.json" --user "admin:Talkman1" -H "Content-Type: application\octet-stream"
```

For example:

```
curl -v -X POST http://172.31.42.241:9080/VoiceCheck/services/steps/import/test%20form -F "steps-
s=@curl new.json" --user "admin:Talkman1" -H "Content-Type: application\octet-stream"
```

### Postman

1. Select the method type as **POST**
2. URL http://serverip:port/VoiceCheck/service/steps/import/{VoiceFormName}
   Voice Form Name in the above URL is voice form to which steps need to imported
3. Select the **Authorization** tab, and select type as “Basic Auth”.
4. Provide valid username and password

5. Select the **Headers** tab, after Authorization header will be automatically filled.
6. Add header with key as “Content-Type” and values as “application/octet-stream”
7. Select the **Body** tab, select form-data checkbox and add key “steps” and in the dropdown next to it select “File” and browse steps.json and click “Send”

## Export Steps

### MockServer

Existing steps can be exported from the VoiceCheck server using this feature. To do so, copy the file from the examples directory (ReadSteps.json) to Mock server\REST\Default\ReadSteps. The exported file should get stored in Mock server\REST\ReadStepsResponse folder as a timestamped file (steps_timestamp.json).

### CURL

Following command can be used to export steps from the VoiceCheck server

```
http://serverip:port/VoiceCheck/services/steps?stepIds={CommaSeparatedStepIds}
```

# VoicePlan Web Services

VoiceCheck exposes a web service that allows the creation of a VoicePlan—essentially a data import. This web service enables creating new VoicePlans as well as updating and deleting existing VoicePlans from the VoiceCheck server. When this web service is invoked, VoiceCheck validates the system for the following:

- If there is no matching VoicePlan name, a new VoicePlan is created.
- If there is a matching VoicePlan name, a new VoicePlan is not created.
- A VoicePlan without Description, VoiceForm and Section Steps is considered invalid and not created.
- A VoicePlan is not created if the VoiceForm associated with the VoicePlan is not found in the VoiceCheck server.

When VoiceCheck receives this message for reading, updating, and deleting of VoicePlans, the following validations are taken into consideration:

- If the VoicePlan name does not exist in VoiceCheck, no details are returned in the response.
- If the VoicePlan exists, the web service can update only the name of the VoicePlan.
- A VoicePlan can be deleted even if it references to some entity in VoiceCheck.

## Create VoicePlan Details

### REST Web Service

WADL: <http or https>://<host>:<port>/VoiceCheck/services/voiceplan?_wadl

URL: <http or https>://<host>:<port>/VoiceCheck/services/voiceplan

Method: POST

Content-Type: application/json;charset=UTF-8

Message Body: JSON as outlined in the schema in the WADL. The elements are described in the input elements table.

Response: On success, HTTP Status 200 with Payload “VoicePlan saved”. On failure, the system returns an error. Any HTTP status code other than 200 or 204 is considered an error. When possible, the host system should return a body for errors.

POST Parameters

A VoicePlan file with valid parameters in the body.

## READ VoicePlan DETAILS

### REST WEB SERVICE

WADL: <http or https>://<host>:<port>/VoiceCheck/services/voiceplan?_wadl

URL: <http or https>://<host>:<port>/VoiceCheck/services/voiceplan/{planIdentifier}

Method: GET

Content-Type: application/json;charset=UTF-8

Response: On success, HTTP Status 200 with or without a body. On failure, the system returns an error.

## UPDATE VoicePlan DETAILS

WADL: <http or https>://<host>:<port>/VoiceCheck/services/voiceplan?_wadl

URL: <http or https>://<host>:<port>/VoiceCheck/services/voiceplan/update/

Method: POST

Content-Type: application/json;charset=UTF-8

Response: On success, HTTP Status 200 with or without a body. On failure, the system returns an error.

### POST Parameters

A VoicePlan file with updated parameters in the body.

### DELETE VoicePlan DETAILS

**WADL**: <http or https>://<host>:<port>/VoiceCheck/services/voiceplan?_wadl

**URL**: <http or https>://<host>:<port>/VoiceCheck/services/voiceplan/{planIdentifier}

**Method**: DELETE

**Response**: On success, HTTP Status 200 with or without a body. On failure, the system returns an error.

## INPUT ELEMENTS

| PROPERTY | TYPE | REQ'D | DEFINITION | VALIDATION |
|---|---|---|---|---|
| planIdentifier | String | Yes | The name of the VoicePlan | Must be unique in VoiceCheck |

# Assignment Web Services

VoiceCheck exposes a web service that allows the creation of an—essentially a data import. This web service enables creating new assignments as well as updating and deleting of existing assignments from the VoiceCheck server.

An assignment specifies a list of sections to perform, and each section contains a list of steps to perform. Each step references a voice-enabled step definition from a VoiceForm.

This service can be used for assignment updates as well as creating new assignments. When VoiceCheck receives this web service message, it checks for existing matches in the system:

- If there is no matching assignment ID and no matching work ID in the system, a new assignment is created.
- If there is a matching assignment ID and the existing assignment is in available status (the assignment has not been started in VoiceCheck), the existing assignment is replaced. If the assignment is in any other state, the import fails.
- If there is no matching assignment ID but there is a matching work ID and the assignment associated with that work ID is in complete status, the existing assignment is replaced. If the existing assignment is in any other status, the import fails. This validation allows for reusing work IDs for assignment updates.

When VoiceCheck receives this message for reading, updating, and deleting of assignments, the following validations are taken into consideration:

- Verify that assignment in progress cannot be deleted using REST over an http server
- Verify that assignment assigned to an operator and not initiated yet should get deleted using REST over an http server

- Verify that assignment in Available state and not assigned to any operator can be deleted using REST over an http
- Verify that a 100% completed assignment cannot be deleted using REST over an http
- Verify that a closed out assignment can be deleted using REST over http server
- Verify that a Re-opened assignment cannot be deleted using Rest over an http server
- Verify that assignment progress is captured using REST over an http server

VoiceCheck prompts technicians to perform each section in the order listed in the sectionsToPerform field and prompts for the steps according to the sequence specified by the sequenceCounter property. Steps may be sent in any order in the web service message; VoiceCheck orders them based on the sequenceCounter property.

## Create Assignment Details

### REST Web Service

**WADL**: <http or https>://<host>:<port>/VoiceCheck/services/assignments?_wadl

**URL**: <http or https>://<host>:<port>/VoiceCheck/services/assignments

**Method**: POST

**Message Body**: XML as outlined in the schema in the WADL, the elements of which are described in the tables below.

**Response**: On success, HTTP Status 204 (No Content) with an empty body. On failure, the system returns an error. See Fault Handling for Assignment Data for more detail.

### SOAP Web Service

**WSDL**: <http or https>://<host>:<port>/VoiceCheck/services/AssignmentService?wsdl

**Service Endpoint**: <http or https>://<host>:<port>/VoiceCheck/services/AssignmentService

**Operation**: createAssignment

**Input**: A single Assignment object, as described in the tables below.

**Output**: On success, the system returns an empty response as defined in the WSDL. On failure, the system returns an error. See Fault Handling for Assignment Data for more detail.

## READ Assignment DETAILS

### REST WEB SERVICE

**WADL**: <http or https>://<host>:<port>/VoiceCheck/services/assignments?_wadl

**URL**: <http or https>://<host>:<port>/VoiceCheck/services/assignments/Default/{assignmentId}

**Method**: GET

**Content-Type**: application/json;charset=UTF-8

**Response**: On success, HTTP Status 200 with or without a body. On failure, the system returns an error.

### DELETE Assignment DETAILS

#### REST WEB SERVICE

**WADL**: <http or https>://<host>:<port>/VoiceCheck/services/assignments?_wadl

**URL**: <http or https>://<host>:<port>/VoiceCheck/services/assignments/Default/{assignmentId}

**Method**: DELETE

**Response**: On success, HTTP Status 200 with or without a body. On failure, the system returns an error.

## Input Elements

| Assignment: Header | | | | |
|---|---|---|---|---|
| **Property** | **Type** | **Req'd** | **Definition** | **Validation** |
| siteName | string | yes | The site name. | Must match an existing site name in VoiceCheck. |
| assignmentId | string | yes | Unique identifier for this assignment within the specified site. | Must be unique for every assignment in VoiceCheck, unless web service record is updating an existing assignment in Available status. |
| workId | string | yes | Unique identifier that a user will enter to request the work. | Must be unique for every assignment in VoiceCheck. |
| metadata | list of key-value pairs | no | A list of additional, pass-through information about the assignment that will be sent back to the host system in the Post Assignment Results message. | No validation. VoiceCheck does not use this pass-through data. |
| operatorId | string | no | Unique identifier of the technician that will be associated with this assignment. | If specified, the value must match an existing operator ID. |
| voiceFormName | string | yes | The name of the VoiceForm from which to look up the voice-enabled step definitions for the stepsToPerform. | Must match an existing VoiceForm name in VoiceCheck. |
| voiceFormVer | string | no | Version of VoiceForm existing in the system | If specified, the value must match an existing VoiceForm version. |
| planName | string | no | The name of the Plan based on which Assignment has to be created | Must match an existing Plan name in VoiceCheck. Must not be included when updating assignment. |

| Assignment: Header | | | | |
|---|---|---|---|---|
| **Property** | **Type** | **Req'd** | **Definition** | **Validation** |
| sectionsToPerform | list of section objects | no | A list of sections to perform, sorted in the order to be performed. See Section definition below. | At least one section must be specified. Plan definition used if not specified. |

| Assignment: Section | | | | |
|---|---|---|---|---|
| **Property** | **Type** | **Req'd** | **Definition** | **Validation** |
| sectionId | string | yes | An identifier for the section. The sectionId must be unique within the assignment. | Must be unique within the assignment. |
| sectionDescription | string | yes | Description of the section to be performed. This VoiceApplication speaks this value as the description of the section when a technician starts a new section in the workflow. | |
| sectionIsPart | boolean | yes | Operations on the host system are categorized as either being a part or not being a part. If the operation is a part, this field contains a value of true; otherwise it is false. Sections that are parts have custom behavior associated with them. | |
| partNumber | comma separated list | no * | The part number. If there are multiple known part numbers for the same part, must be sent in a comma separated list (no spaces) in this field. For example:<br>100234,100345,100456<br>**TIP**<br>If the inspection material is expected to contain more than one of the same part, you must create two ***identical*** part sections (with the same partNumber entry) in the assignment.<br>* Required when sectionIsPart = true. | |
| partDescription | string | no * | The part name.<br>* Required when sectionIsPart = true. | |
| stepsToPerform | list of step objects | yes | A set of steps to perform, sent in any order<br>See Step definition below. | At least one step must be specified. |
| loop | Boolean | No | Determines if the section is a looping section | Can only be true/false. |

| Assignment: Section | | | | |
|---|---|---|---|---|
| **Property** | **Type** | **Req'd** | **Definition** | **Validation** |
| loopingPrompt | String | No | Message shown to user to confirm whether there is to be another looping iteration of this section | If "loop" = true "loopingPrompt" must have a text value (not null or " ") |

| Assignment: Step | | | | |
|---|---|---|---|---|
| **Property** | **Type** | **Req'd** | **Definition** | **Validation** |
| sequenceCounter | numeric string | yes | Unique number assigned to the step to determine the order in which the step is performed within the section.<br>The system converts this value to a number for ordering the steps. | Must be numeric.<br>Must be unique within the section. |
| stepId | string | yes | An identifier for the step to perform from the VoiceForm. | Must exist in the VoiceForm referenced by this assignment. |
| isMandatory | boolean | yes | A flag that indicates if this step is mandatory. Valid values:<br>true = step is mandatory<br>false = step is not mandatory<br>Note that if a step is set as mandatory, the VoiceApplication will not allow a technician to respond with "does not apply." | Must contain one of the valid values. |
| promptData | list of key-value pairs | no | A list of values to be substituted for variable tokens in this step's prompt and help message. | No validation. |
| metadata | list of key-value pairs | no | A list of additional, pass-through information about the step that will be sent back to the host system in the Post Assignment Results message. | No validation. VoiceCheck does not use this pass-through data. |

**Additional validation rules**: The createAssignment import messages are subject to additional validation rules for dependent steps and display IDs. VoiceCheck verifies each step to be imported against the existing VoiceForm step definitions to validate that:

- If a step references another step as a display ID, that reference step is found in the assignment import,
- If a step has conditions that are dependent on another step, that reference step is found in the assignment import and follows the rules for step dependencies. See Rules for Step Dependencies.

# Rules for Step Dependencies

The inspection plan sent from the host system must adhere to a set of rules so that the VoiceApplication can determine how to link dependent steps to steps referenced in condition statements.

The rules are especially important because a plan can contain many instances of a single step—all with the same step ID but with potentially different dependent steps or with no dependencies at all.

## Step Occurrence in Inspection Plans

- A reference step must appear before its dependent step in assignment. If the dependent step refers to a reference step that occurs later in the assignment, the dependent step is skipped.
- If a reference step cannot be found in the inspection plan, the VoiceApplication ignores the conditions and executes the dependent steps.
- If the reference step ID occurs only once in the inspection plan, the reference step can be in any non-parts section while the dependent step(s) appear in any section. Reference step IDs in parts sections can only be referenced by dependent steps in the same parts section.
- If the reference step ID occurs multiple times in the inspection plan, the reference step must be in the same section as its dependent step and must be the only instance of that step ID within that section.

| Sample Inspection Plan:<br>Single Reference Step in Plan; Defined before Any Dependent Steps | Sample Inspection Plan:<br>Single Reference Step and Dependent Steps Confined within Parts Section | Sample Inspection Plan:<br>Multiple References; Dependencies Confined within Sections |
|---|---|---|
| Section I<br>**Step A (reference)**<br>Step B<br>Step C | Section I<br>Step B<br>Step C | Section I<br>**Step A (reference)**<br>**Step D (dependent)**<br>Step A |
| Section II<br>**Step D (dependent)**<br>Step C<br>Step E<br>Step C | Section II<br>Step E<br>Step F | Section II<br>**Step A (reference)**<br>**Step D (dependent)**<br>Step B |

| Sample Inspection Plan:<br><br>Single Reference Step in Plan; Defined before Any Dependent Steps | Sample Inspection Plan:<br><br>Single Reference Step and Dependent Steps Confined within Parts Section | Sample Inspection Plan:<br><br>Multiple References; Dependencies Confined within Sections |
|---|---|---|
| Section III<br><br>Step E<br><br>**Step D (dependent)** | Parts Section I<br><br>**Step A (reference)**<br><br>Step E<br><br>**Step D (dependent)**<br><br>Step C<br><br>**Step D (dependent)** | Section III<br><br>Step A<br><br>Step E |
| Parts Section<br><br>**Step D (dependent)** | Parts Section II<br><br>Step E<br><br>Step C | Parts Section<br><br>**Step A (reference)**<br><br>**Step D (dependent)**<br><br>Step G |

# Close Assignment Web Service

VoiceCheck exposes a web service that allows an assignment to be closed out. This message is called by the host system when the usage decision is made for an inspection lot and sent in order to close out an assignment in VoiceCheck.

When an assignment is closed out, its status changes to Complete. Any remaining steps are left in their current status. No results are transmitted for this assignment while it is being closed out or after close.

## Close Assignment Details

### REST Web Service

**WADL**: <http or https>://<host>:<port>/VoiceCheck/services/assignments?_wadl

**URL**: <http or https>://<host>:<port>/VoiceCheck/services/assignments/{siteName}/{assignmentId}/status

The {siteName} and {assignmentId} are path parameters, the values of which should be URL encoded.

**Method**: POST

**Message Body**: XML as outlined in the schema in the WADL, the elements of which are described in the table below.

**Response**: On success, HTTP Status 204 (No Content) with an empty body. On failure, the system returns an error. See Fault Handling for Assignment Data for more detail.

### Input Details – REST

Path parameters:

- {siteName} - The name of the site. The system validates that the parameter matches an existing site name in the system.
- {assignmentId} - A unique identifier for the assignment to close. The system validates that the parameter matches an existing assignment ID in the system.

| Close Assignment | | |
|---|---|---|
| XML Element | Req'd | Definition |
| assignmentStatus | yes | The only valid value for this element is "complete."<br>Example entry:<br><assignmentStatus>complete</assignmentStatus> |

### SOAP Web Service

**WSDL**: <http or https>://<host>:<port>/VoiceCheck/services/AssignmentService?wsdl

**Service Endpoint**: <http or https>://<host>:<port>/VoiceCheck/services/AssignmentService

**Operation**: createAssignment

**Input**: A single Assignment object, as described in the tables below.

**Output**: On success, the system returns an empty response as defined in the WSDL. On failure, the system returns an error. See Fault Handling for Assignment Data for more detail.

### Input Details – SOAP

| Close Assignment | | | | |
|---|---|---|---|---|
| Property | Type | Req'd | Definition | Validation |
| siteName | string | yes | The name of the site. | Must match an existing site name in the system. |

| Close Assignment | | | | |
|---|---|---|---|---|
| Property | Type | Req'd | Definition | Validation |
| assignmentId | string | yes | Unique identifier for the assignment to close. | Must match an existing assignment ID in the system.<br>The assignment cannot be In-progress with a technician actively working on it. |

# Post Assignment Results Web Service

VoiceCheck consumes a web service exposed by the host system in order to post results—essentially a data export. For a given assignment, this message can be sent multiple times. It is sent each time a user submits results through the VoiceCheck graphical user interface (GUI). It includes results for any steps that have a status of "complete" or "does not apply" at the time of submission and that have not already been submitted to the host system.

In order to use this export functionality, the host system must implement a REST or SOAP web service according to the details specified below. VoiceCheck includes both REST and SOAP web service clients that can consume a service built according to the specifications below. For SOAP, the PostAssignmentResults.wsdl WSDL document included in the product package details the contract that the SOAP service must implement. For REST, an example WADL is included in the product package as a reference for implementers developing a REST service.

Note that for REST, the specification is slightly more flexible than what is detailed in the example WADL. In fact, there is no requirement to even use a WADL as long as the service behaves as specified below.

## REST Web Service

**URL**: Completely flexible, can be decided by each server implementation.

The URL can specify either http or https. The VoiceCheck client uses the transport corresponding to the protocol specified. Configure the URL as the **Service Endpoint** on the **Administration > System Configuration** page of the user interface.

**Example**: <http or https>://<server>/assignmentResults

**Authentication**: HTTP Basic Authentication is supported but not required. Turn authentication on for the VoiceCheck client by checking the **Requires Authentication** checkbox on the **Administration > System Configuration** page of the user interface.

**Method**: POST

**Content-Type**: application/xml;charset=UTF-8

The VoiceCheck client always sends the results content using this content type, so the host server implementation must accept this content type.

**Message Body**: XML as outlined in the schema in the WADL, the elements of which are described in the tables below.

**Response**: On success, HTTP Status 204 (No Content) with an empty body. It is also acceptable for the service to return HTTP Status 200 (Success), with or without a body. If the VoiceCheck client receives a body, it will be ignored.

When returning content, the server should use the content-type: application/xml;charset=UTF-8

Any HTTP status code other than 200 or 204 is considered an error. When possible, the host system should return a body for errors containing a faultInfo element. The information in the faultInfo element will be used to provide additional details about the error to the GUI user. See Fault Handling for Assignment Data for more detail.

## SOAP Web Service

**WSDL**: You must build a server that implements the PostAssignmentResults.wsdl as provided by Honeywell. The input details below describe the data elements in this WSDL.

**Service Endpoint**: Completely flexible, can be decided by each server implementation.

The URL can specify either http or https. The VoiceCheck client uses the transport corresponding to the protocol specified. Configure the URL as the service endpoint on the **Administration > System Configuration** page of the user interface.

**Example**: <http or https>://<server>/AssignmentResultsService

**Authentication**: HTTP Basic Authentication is supported but not required. Turn authentication on for the VoiceCheck client by checking the Requires Authentication checkbox on the **Administration > System Configuration** page of the user interface.

**Fault Handling**: The server may return any SOAP fault. If the server returns the WebServiceException fault specified in the WSDL, the message contained in the WebServiceException will be displayed as part of the error message in the VoiceCheck GUI. All other faults will trigger a generic error message in the GUI.

## Input Details

| Assignment Results: Header | | | |
|---|---|---|---|
| **Property** | **Type** | **Req'd** | **Definition** |
| siteName | string | yes | The site name. |

| Assignment Results: Header | | | |
|---|---|---|---|
| **Property** | **Type** | **Req'd** | **Definition** |
| assignmentId | string | yes | The assignmentId that was sent from the host system to VoiceCheck in the Create Assignment message. |
| workId | string | yes | The workId that was sent from the host system to VoiceCheck in the Create Assignment message. |
| user | string | yes | The VoiceCheck GUI user who submitted the results. |
| timeSubmitted | datetime | yes | The time that the user submitted the results to the external system.<br>Data type: XML schema xs:dateTime type.<br>Format: valid xs:dateTime string value indicating the time in UTC: YYYY-MM-DDThh:mm:ss.sssZ<br>**Example**: 2014-06-14T19:27:33.152Z |
| metadata | list of key-value pairs | no | A list of additional, pass-through information about the assignment that was sent in the Create Assignment message. |
| sectionResults | list section results | yes | List of section results defined in the following table. |

| Assignment Results: Section Results | | | |
|---|---|---|---|
| **Property** | **Type** | **Req'd** | **Definition** |
| sectionId | string | yes | An identifier for the section that was sent from the host system in the Create Assignment message. |
| stepResults | list of step results | yes | List of step results defined in the following table. |

| Assignment Results: Step Results | | | |
|---|---|---|---|
| **Property** | **Type** | **Req'd** | **Definition** |
| sequenceCounter | numeric string | yes | The sequenceCounter sent for the step in the Create Assignment message. |
| stepId | string | yes | The identifier of the step that was performed from the VoiceForm. This value matches the stepId that was sent for the step in the Create Assignment message. |
| user | string | yes | Voice inspection user name or technician who last updated the result. |
| metadata | list of key-value pairs | no | A list of additional, pass-through information about the step that was sent in the Create Assignment message. |
| startTime | datetime | yes | The date and time that the step was started in the voice application by the device operator.<br>Data type: XML Schema xs:dateTime type<br>Format: valid xs:dateTime string value indicating the time in UTC: YYYY-MM-DDThh:mm:ss.sssZ<br>**Example**: 2014-06-14T19:27:33.152Z<br>Results that are system-generated, such as a dependent step marked "does not apply," do not include a start time.<br>**NOTE**<br>The startTime and endTime may not always reflect the actual time spent performing the step because the voice application provides technicians with functions such as skipping steps and redoing steps. |

| Assignment Results: Step Results | | | |
|---|---|---|---|
| **Property** | **Type** | **Req'd** | **Definition** |
| endTime | datetime | yes | The date and time that the step was completed in the voice application by the device operator.<br>Data type: XML Schema xs:dateTime type.<br>Format: valid xs:dateTime string value indicating the time in UTC: YYYY-MM-DDThh:mm:ss.sssZ<br>**Example**: 2014-06-14T19:27:33.152Z<br>**NOTE**<br>The startTime and endTime may not always reflect the actual time spent performing the step because the voice application provides technicians with functions such as skipping steps and redoing steps. |
| status | integer | yes | An integer value describing the final status of the step.<br>Valid values:<br>2 = Does not apply<br>3 = Complete |
| results | list of strings | no | A list of results for the step. Each result is specified as a result element containing a string.<br>When the status is "2" (does not apply), no results are sent (the XML does not contain any results elements).<br>When the status is "3" (complete), results may be sent or not, depending on the step type. See the "Results for Completed Steps" table below. |

| Assignment Results: Step Results | | | |
|---|---|---|---|
| **Property** | **Type** | **Req'd** | **Definition** |
| notes | list of strings | no | A list of dynamic VoiceNotes recorded for a step.<br>When the status is set to **2** (does not apply), no notes are sent (the XML does not contain any notes elements).<br>When the status is set to **3** (complete), notes are sent depending on the **Step Type**. Dynamic VoiceNotes are not permitted for Steps with Types: Prompt Only, Prompt Notes, Prompt Photos, and Prompt Part Number. |

| Results for Completed Steps | |
|---|---|
| **Step Type (from VoiceForm)** | **Description** |
| Prompt Only | No results sent. |
| Ready | No results sent. |
| Notes | Zero or more results sent. One result is sent for each transcription that is not blank. If all notes for a step have blank transcriptions, no results are sent. |
| Multiple List Selection | One or more results sent. One result is sent for each selection made at the prompt. The value of each result will be the key from the VoiceForm that represents the selection made. |
| Float Value | One result sent. The result is the value spoken by the user. |
| Value Entry | One result sent. The result is the value spoken by the user. |

| Results for Completed Steps | |
|---|---|
| Step Type (from VoiceForm) | Description |
| Long Value Entry | One result sent. The result is the value spoken by the user. |
| Fraction | One result sent. The result is the value spoken by the user. |
| Date | One result sent. The result is the value spoken by the user and formatted as per the date format specified in the VoiceForm. |
| Photos | One or more results sent. One result is sent for each photo taken. The value of each result will be the URL that can be used by an external system to retrieve the photo using the Get Photo Web Service. |
| Part Number | One result sent. The result is the value chosen or spoken by the user. |

# Assignment Export

There are three REST web services available to PULL data from assignment exports.

## Get Available Exports

**URL**: http://<voice_check_server_name:port>/VoiceCheck/services/exports

A username and password must be provided.

**Method**: GET

**Result**: A JSON list of IDs from VoiceCheck that are ready to be exported, in the following format:

```
[
{"id":"<id_1>"},
{"id":"<id_2>"},
…
{"id":"<id_N>"}
]
```

## Get An Export

**URL**: http://<voice_check_server_name:port>/VoiceCheck/services/exports/<export_id>

**Method**: GET

**Result**: The assignment's export data.

## Mark Export as Received

Used to tell VoiceCheck that the data was received from **Get An Export** and is OK.

**URL**: http://<voice_check_server_name:port>/VoiceCheck/services/exports/<export_id>

The <export id> is the same ID used in **Get An Export**.

**Method**: POST

> NOTE
> Any exports marked as received using **Mark Export as Received** will not be returned for **Get Available Exports**. However, an export can still be accessed directly using its id in **Get an Export**.

# Get Photo Web Service

When an inspection step result includes photo files that are posted to the VoiceCheck server, the assignment results data that is exported to the host system contains URLs for retrieving those files. Users will have to log in using their VoiceCheck credentials to view these URLs/photos from the browser. These photo files will be purged from VoiceCheck according to the purge schedule set in the **System Configuration** GUI page, so the host system would have to retrieve them before purging.

VoiceCheck exposes a REST web service for Get Photo. The GET request is a URL that contains the filename of a photo. All parameters are contained in the URL.

## REST Web Service

**Action**: getPhoto

**URL**: <http or https>://<VoiceCheck IP>:<port>/VoiceCheck/services/photos/<Device.Id>_<photo filename>.jpg

**Example**: http://localhost:8090/VoiceCheck/services/photos/12345678_150519085225.jpeg

**Method**: GET

**Parameter**: photoName (parameter is sent in the URL)

**Content-Type**: (blank)

**Response**: On success, HTTP Status 200. When photo is not found, the service generates a WebAppplicationException with status HTTP Status 404 Not Found.

**Basic Authentication:** VoiceCheck User Name and Password

Alternatively, if the host system has access to the photos folder on the VoiceCheck server, it can copy the photo files directly over the network.

# Running the Installation Program

This section covers how to install the Honeywell applications using the installation user interface.

> CAUTION
> To avoid potential issues, Honeywell recommends installing VoiceCheck directly from a local drive or from the distribution media. If the application is installed from a shared network drive, you may experience interruptions and failures.

- Close all other applications before installing
- When installing on Windows, run the installer as an administrator.
- If installing from a product DVD, navigate to and run **install.exe**.

## Introduction

The installation begins with an introduction screen.

Click **Next**.

## License Agreement

Review and accept the terms of the license agreement and click **Next**.

## Select Installation Path

Click **Next** to install to the default path or, if necessary, browse to the desired installation path and click **Next**.

## Software to Install

Click **Next** to start copying the required software files.

## Copying Software

During this step, VoiceCheck software files copy to the installation path. When the copy process is finished, click **Next**.

## Cluster Configuration

### Cluster Configuration Details

Select No to continue a standard installation.

Select Yes if you want this installation to be part of a clustered environment. Specify a folder location for shared storage, then click **Next**. See Installing into a Clustered Environment for more information.

**Load Balanced Environment Details**

Check this option if you want to set up a load balanced environment.

> IMPORTANT
> The primary node must be installed first. For important additional load balancing installation information see Installing into a Load Balancing Environment.

If using load balancing, indicate if this installation is the primary node and identify the shared storage location then click **Next**.

**Shared Storage**

> IMPORTANT
> You must enter a full UNC path, including the application server hostname, to the shared storage location during a cluster installation. Do not reference a mapped drive or relative path.

## SSO Configuration

If using SSO, complete this screen. For additional information, see SSO Configuration.

## Configuration and Installation

This page contains three tabs for configuring your implementation of VoiceCheck.

1. Click the **Tomcat Server Configuration** tab.
2. Enter the appropriate information for your Tomcat server.

| Tomcat | |
|---|---|
| **Field** | **Description and Required Action** |
| Tomcat Login | Choose an account and enter the account username and password, if necessary.<br><br>In Windows, if you select **Use Existing Account**, ensure the account entered has the necessary permissions:<br>• Read permission to the directory from which the installation program is being run<br>• **Log on as a service** rights and permissions (refer to http://support.microsoft.com/kb/327545 for setup information).<br>• Write permissions to all paths provided during installation for the install folder, log files directory, application files location<br>• Write permissions to the shared drive for a clustered install (if applicable)<br><br>**NOTE**<br>If you want to use NT authentication for SQL Server databases for a Windows installation, you must use an existing account. |
| Tomcat Path | Confirm the default path to the location where log files will be stored or, if necessary, browse to the desired path. Log files track user activities in the VoiceCheck application. |
| Tomcat Port | Confirm the default ports the application server will use, or, if necessary, enter different ports. |

3. Click the **Database Configuration** tab.
4. Enter the appropriate information for your database.

| Microsoft SQL Server | |
|---|---|
| **Field** | **Description** |
| Data Hostname | DNS name or IP address of the machine hosting the database. |
| Database Port | The port that the database uses. Valid entry must be an integer between 1 and 65535. The default port for SQL Server is 1433. |
| Database Name | The name of the database. |

| Microsoft SQL Server | |
|---|---|
| **Field** | **Description** |
| JDBC URL (Advanced Settings only) | The JDBC URL for the database. Valid entry format:<br>jdbc:sqlserver://<host>:<port>;<br>DatabaseName=<database name> |
| Authentication Type | (for Windows installs only where an existing user was specified for the Tomcat Server configuration)<br>The authentication type used to connect to the database. If installing on Windows and an existing user was specified for the Tomcat Service configuration, select to use NT Authentication. Otherwise, select SQL Server Authentication. |
| Database Username | The username that the application should use to log into the database. This is disabled if using NT Authentication. |
| Database Password | The password of the user that the application should use to log into the database. This is disabled if using NT Authentication. |
| Database schema | The database schema you are using. |

| Oracle Database | |
|---|---|
| **Field** | **Description** |
| Data Hostname | DNS name or IP address of the machine hosting the database. |
| Database Port | The port that the database uses. Valid entry must be an integer between 1 and 65535. The default port for Oracle is 1521. |
| SID | The SID of the Oracle database. |
| JDBC URL (Advanced Settings only) | The JDBC URL for the database. Valid entry format:<br>jdbc:oracle:think:@<host>:<port>:<database name> |
| Database Username | The username that the application should use to log into the database. |
| Database Password | The password of the user that the application should use to log into the database. |

5. Click the **VoiceCheck Configuration** tab.
6. In the **Storage Directory** field, keep the default VoiceCheck installation path or browse to a different location. The storage directory must have sufficient space to store multiple VoiceNotes and photo files.
7. Check the **Enable HTTPS Support** checkbox if you want to enable secure HTTPS on all pages of VoiceCheck.
   a. Enter or browse to your HTTPS certificate **Keystore Location**.
   b. Enter your **Keystore Password** and **Keystore Alias**.

8. Click **Install Now**.
9. When the initial VoiceCheck installation completes, click **OK**.

### Setup Shortcuts

If desired, select the Start menu program group in which to place the VoiceCheck shortcut, or edit the path of the shortcut. Then click **Next**.

If you do not want a VoiceCheck shortcut on the Start menu, clear the **Create shortcut in the Start menu** checkbox. A shortcut to VoiceCheck is placed on the desktop after the installation process completes.

### Installation Complete

When the installation is complete, a success message displays with information about the uninstaller program.

If desired, click the **Generate script** button to generate an .xml file containing your installation selections. Use this script to perform additional silent installations.

Click **Done** to exit the installation program. The VoiceCheck application should open automatically in your supported browser.

### HTTPS Installation Not Running

If you enabled HTTPS support during the installation and VoiceCheck does not start up properly, check your HTTPS certificate keystore information and correct the values in the Tomcat server as needed. See Configuring Tomcat with Keystore Information for instructions on manually editing the keystore fields.

### Configure Photos URL

The installer does not ask for a host name during installation, so the name "localhost" is used for the hostname. If the URL used to connect to VoiceCheck is *http://localhost:9070/VoiceCheck* the exported URL for photos uses localhost rather than the server name or server IP address.

To reconfigure the URL to use the server name or IP address, open the server.properties file located at C:\Program Files\Vocollect\VoiceCheck\tomcat\webapps\VoiceCheck\WEB-INF\classes\server.properties, which is the default installation location. The file should look like this:

```
server.port=80
server.name=localhost
server.scheme=http
server.contextRoot=VoiceCheck
server.https.port=443
server.https.enabled=true
```

Change **server.name=localhost** to **server.name=<your IP address or DNS host name>**.

### Storage of Database Passwords

The installation program stores the database.properties file in the target installation folder. This file includes the database password and username that the application uses to log into the database (unless you are using SQL Server with NT Authentication). While the passwords in this file are encrypted, this file is a plain text file that can be read by any text editor. Therefore, if you want to secure this file, follow the appropriate steps to secure it with file permissions.

Related Topics

VoiceCheck Installation

# Silent Installation

> NOTE
> When installing or upgrading, to avoid any potential issues, Honeywell highly recommends against installing VoiceCheck from a shared network drive. If the application cannot be installed directly from the distribution media it must be copied to local drive prior to install.

> IMPORTANT
> Before performing a silent upgrade to VoiceCheck 1.11 review the Silent Upgrades information below.

Close all other applications before installing.

A silent install or upgrade is available by providing an .xml file with the information that would be provided during a user interface installation. The xml file is provided as a command line argument to the installer executable, batch, or script file to perform the installation.

Run the installer; choose all the options that you need, and then on the **Installation Finished** window (last window), click **Generate script** to generate the xml file with your installation choices.

The xml file can be edited as necessary.

## Silent Upgrades

New fields are added to the silent install These fields must be added to an existing silent install xml file before a silent installation upgrade of VoiceCheck 1.11.

```
<!--*******Content upto id="installpanel"***************-->
<com.izforge.izpack.panels.ClusterPanel id="clusterpanel">
<clusteredInstall>false</clusteredInstall>
<clusterSharePath><Shared path></clusterSharePath>
```

```
<lbChkBox>false</lbChkBox>
<lbPrimaryChkBox>false</lbPrimaryChkBox>
</com.izforge.izpack.panels.ClusterPanel> <com.izforge.izpack.panels.SsoPanel
id="ssopanel"> <isSsoEnabled>true</isSsoEnabled>
<ssoAdminUser>value</ssoAdminUser>
<ssoClientId>value</ssoClientId>
<ssoClientSecret>value</ssoClientSecret>
<ssoAuthenticationUrl>value</ssoAuthenticationUrl>
<ssoTokenUri>value</ssoTokenUri>
<ssoIssuerUri>value</ssoIssuerUri>
<ssoJwksUri>value</ssoJwksUri>
<ssoRedirectUri>value</ssoRedirectUri>
<ssoUserInfoUri>value</ssoUserInfoUri>
<ssoAudienceAttribute>value</ssoAudienceAttribute>
<ssoLogoutUrl>value</ssoLogoutUrl>
<ssoClientUserName>sub</ssoClientUserName>
</com.izforge.izpack.panels.SsoPanel>

<com.izforge.izpack.panels.configurator.ConfiguratorPanel
id="configuratorPanel">
<configuratorData>
<!--
*******Existing Content of id="configuratorPanel"***************
-->
<configuratorProperty
configItemNameToModify="01clusterType">cluster</configuratorProperty>
<configuratorProperty
configItemNameToModify="01authMode">sso</configuratorProperty>
</configuratorData>
</com.izforge.izpack.panels.configurator.ConfiguratorPanel>
```

For information on configuring these entries, see SSO Configuration and Installing into a Load Balancing Environment.

## Sample Silent Install File

> **NOTE**
> Variables enclosed in curly braces above must be replaced with the intended values.

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
```

```
<AutomatedInstallation langpack="eng">
<ImagePanel id="UNKNOWN (ImagePanel)"/>
<com.izforge.izpack.panels.HTMLLicencePanel id="licencepanel"/>
<com.izforge.izpack.panels.UpgradePanel id="upgradepanel"/>
<com.izforge.izpack.panels.TargetPanel id="targetpanel">
<installpath>C:\Program Files\Vocollect\VoiceCheck</installpath>
</com.izforge.izpack.panels.TargetPanel>
<com.izforge.izpack.panels.PacksPanel id="packspanel">
<pack index="0" name="tomcatWindowsx86_64" selected="true"/>
<pack index="1" name="application" selected="true"/>
<pack index="2" name="jreWindowsx86_64" selected="true"/>
</com.izforge.izpack.panels.PacksPanel>
<com.izforge.izpack.panels.InstallPanel id="installpanel"/>
<com.izforge.izpack.panels.ClusterPanel id="clusterpanel">
<clusteredInstall>false</clusteredInstall>
<clusterSharePath/>
<lbChkBox>false</lbChkBox>
<lbPrimaryChkBox>false</lbPrimaryChkBox>
</com.izforge.izpack.panels.ClusterPanel>
<com.izforge.izpack.panels.SsoPanel id="ssopanel">
<isSsoEnabled>true</isSsoEnabled>
<ssoAdminUser>administrator</ssoAdminUser>
<ssoClientId>ClientID</ssoClientId>
<ssoClientSecret>ClientSecret</ssoClientSecret>
<ssoAuthenticationUrl>https://help.honeywellaidc.com/Content/WFS_
Home.htm</ssoAuthenticationUrl>
<ssoTokenUri>https://help.honeywellaidc.com/Content/WFS_Home.htm</ssoTokenUri>
<ssoIssuerUri>https://help.honeywellaidc.com/Content/WFS_
Home.htm</ssoIssuerUri>
<ssoJwksUri>https://help.honeywellaidc.com/Content/WFS_Home.htm</ssoJwksUri>
<ssoRedirectUri>https://help.honeywellaidc.com/Content/WFS_
Home.htm</ssoRedirectUri>
<ssoUserInfoUri>https://help.honeywellaidc.com/Content/WFS_
Home.htm</ssoUserInfoUri>
<ssoAudienceAttribute>aud</ssoAudienceAttribute>
<ssoLogoutUrl>https://help.honeywellaidc.com/Content/WFS_
Home.htm</ssoLogoutUrl>
<ssoClientUserName>sub</ssoClientUserName>
<ssoScopes>openid,user</ssoScopes>
</com.izforge.izpack.panels.SsoPanel>
```

```
<com.izforge.izpack.panels.configurator.ConfiguratorPanel
id="configuratorPanel">
<configuratorData>
<configuratorProperty
configItemNameToModify="01sqlDatabaseHostname">PA0LLTH7JFDY3\\MSSQLSERVER01</co
nfiguratorProperty>
<configuratorProperty
configItemNameToModify="05sqlDatabaseUsername">user</configuratorProperty>
<configuratorProperty
configItemNameToModify="07sqlDatabaseSchema">dbo</configuratorProperty>
<configuratorProperty
configItemNameToModify="01clusterType">none</configuratorProperty>
<configuratorProperty
configItemNameToModify="01authMode">sso</configuratorProperty>
<configuratorProperty
configItemNameToModify="testConnection">true</configuratorProperty>
<configuratorProperty configItemNameToModify="03sqlDatabaseName">voicecheck_
111_sso</configuratorProperty>
<configuratorProperty configItemNameToModify="06sqlDatabasePassword">ENC
(9e8i3kbBDtJnOoU5MJH7R83lF1hBAX+u)</configuratorProperty>
<configuratorProperty
configItemNameToModify="03voiceCheckStorageDirectory">C:\Program
Files\Vocollect\VoiceCheck</configuratorProperty>
<configuratorProperty configItemNameToModify="01tomcatLogDirectory">C:\Program
Files\Vocollect\VoiceCheck\logs</configuratorProperty>
<configuratorProperty configItemNameToModify="01databaseServer">SQL
Server</configuratorProperty>
<configuratorProperty configItemNameToModify="#date">Jun 20, 2025 4:56:54
PM</configuratorProperty>
</configuratorData>
</com.izforge.izpack.panels.configurator.ConfiguratorPanel>
<com.izforge.izpack.panels.ShortcutPanel id="shortcutpanel">
<programGroup name="Vocollect\VoiceCheck"/>
<shortcut KdeSubstUID="false" categories="" commandLine="start"
createForAll="false" description="Go to VoiceCheck web application" encoding=""
group="true" icon="C:\Program Files\Vocollect\VoiceCheck\tools\vocollect_
icon.ico" iconIndex="0" initialState="1" mimetype="" name="VoiceCheck"
target="C:\Program Files\Vocollect\VoiceCheck\bin\WebApplication.url"
terminal="" terminalOptions="" tryexec="" type="1" url="" usertype="0"
workingDirectory="C:\Program Files\Vocollect\VoiceCheck\bin"/>
</com.izforge.izpack.panels.ShortcutPanel>
```

```
<com.izforge.izpack.panels.VocollectFinishPanel id="finishpanel"/>
</AutomatedInstallation>
```

APPENDIX

# A

# VOICECHECK/MAINTENANCE & INSPECTION VERSION HISTORY

Release Notes for each version of VoiceCheck/Maintenance & Inspection are available at help.honeywellaidc.com.

| Version | Release Date |
|---|---|
| 1.11 | July 2025 |
| 1.10 | July 2023 |
| 1.9 | October 2022 |
| 1.8 | January 2021 |
| 1.7.1 | December 2019 |
| 1.7 | April 2019 |
| 1.6 | May 2018 |
| 1.5 | November 2017 |
| 1.4 | June 2017 |
| 1.3 | May 2017 |
| 1.2 | November 2016 |
| 1.1 | November 2015 |

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VoiceCheck Implementation Guide

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