Administrator Guide

Revision: 3
Distribution: Red Hat / Cent OS
Created: June 28, 2020
Last updated: March 16, 2021
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1 Overview

This guide describes how to obtain and install binary packages for the Amazon Web Services (AWS) Transcribe plugin to the UniMRCP server on Red Hat-based Linux distributions. The document is intended for system administrators and developers.

1.1 Applicable Versions

Instructions provided in this guide are applicable to the following versions.

- UniMRCP 1.7.0 and above
- UniMRCP Transcribe Plugin 1.0.0 and above

1.2 Supported Distributions

UniMRCP RPMs are currently available for x86_64 (64-bit) architecture only.

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Released</th>
<th>End of Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Hat / Cent OS 7</td>
<td>June 2020</td>
<td>TBA</td>
</tr>
<tr>
<td>Red Hat / Cent OS 8</td>
<td>January 2021</td>
<td>TBA</td>
</tr>
</tbody>
</table>

Note: packages for other distributions can be made available upon request. For more information, contact services@unimrcp.org.

1.3 Authentication

UniMRCP binary packages are available to authenticated users only. In order to register a free account with UniMRCP, please visit the following page.

- [https://www.unimrcp.org/profile-registration](https://www.unimrcp.org/profile-registration)

Note: a new account needs to be verified and activated prior further proceeding.
2 Installing RPMs Using YUM

Using the Yellowdog Updater, Modifier (yum), a command-line package management utility for Red Hat-based distributions, is recommended for installation of UniMRCP binary packages.

2.1 Repository Configuration

The content of a typical yum configuration file, to be placed in /etc/yum.repos.d/unimrcp.repo, is provided below.

```
[unimrcp]
name=UniMRCP Packages for Red Hat / Cent OS-$releasever $basearch
baseurl=https://username:password@unimrcp.org/repo/yum/main/rhel$releasever/$basearch/
enabled=1
sslverify=1
gpgcheck=1
gpgkey=https://unimrcp.org/keys/unimrcp-gpg-key.public

[unimrcp-noarch]
name=UniMRCP Packages for Red Hat / Cent OS-$releasever noarch
baseurl=https://username:password@unimrcp.org/repo/yum/main/rhel$releasever/noarch/
enabled=1
sslverify=1
gpgcheck=1
gpgkey=https://unimrcp.org/keys/unimrcp-gpg-key.public
```

The username and password fields included in the HTTPS URI must be replaced with the corresponding account credentials.

2.2 Repository Verification

In order to verify that yum can properly connect and access the UniMRCP repository, the following command can be used.

```
yum repolist unimrcp
yum repolist unimrcp-noarch
```

where `unimrcp` and `unimrcp-noarch` are names of the sections set in the yum configuration file above.

In order to retrieve a list of packages the UniMRCP repository provides, the following command can be used.

```
yum --disablerepo="*" --enablerepo="unimrcp" list available
```
2.3 Transcribe Plugin Installation

In order to install the Transcribe plugin, including all the dependencies, use the following command.

```
yum install unimrcp-transcribe
```

In order to install the additional data files for the sample client application *umc*, the following command can be used.

```
yum install umc-addons
```

Note: this package is optional and provides additional data which can be used for validation of basic setup.
3 Installing RPMs Manually

UniMRCP RPM packages can be installed manually using the `rpm` utility. Note, however, that the system administrator should take care of package dependencies and install all the packages in appropriate order.

The RPM packages have the following naming convention:

```
$packagename-$universion-$packageversion.el$rhelversion.$arch.rpm
```

where

- `packagename` is the name of a package
- `universion` is the UniMRCP version
- `packageversion` is the RPM release version
- `rhelversion` is the Red Hat version
- `arch` is the architecture (x86_64, i686, …)

3.1 Package List

The following is a list of UniMRCP RPM packages required for the installation of the Transcribe plugin.

<table>
<thead>
<tr>
<th>Package Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>unimrcp-transcribe</td>
<td>AWS Transcribe plugin to the server.</td>
</tr>
<tr>
<td>uniawssdk</td>
<td>UniMRCP edition of the AWS SDK CPP library.</td>
</tr>
<tr>
<td>unilibevent</td>
<td>UniMRCP edition of the libevent library.</td>
</tr>
<tr>
<td>umc-addons</td>
<td>Sample en-US data files used with umc. [Optional]</td>
</tr>
<tr>
<td>unilicnodegen</td>
<td>Node information retrieval tool, required for license deployment.</td>
</tr>
<tr>
<td>unimrcp-server</td>
<td>Shared library and application of the server.</td>
</tr>
<tr>
<td>unimrcp-client</td>
<td>Shared libraries and sample applications of the client. [Optional]</td>
</tr>
<tr>
<td>unimrcp-demo-plugins</td>
<td>Set of demo plugins to the server. [Optional]</td>
</tr>
<tr>
<td>unimrcp-common</td>
<td>Data common for the client and the server.</td>
</tr>
</tbody>
</table>
### 3.2 Package Installation Order

Note that all the RPM packages provided by UniMRCP are signed by a GNU Privacy Guard (GPG) key. Before starting the installation, you may need to import the public key in order to allow the `rpm` utility to verify the packages.

```bash
rpm --import https://unimrcp.org/keys/unimrcp-gpg-key.public
```

Packages for the APR, APR-Util and Sofia-SIP libraries must be installed first.

```bash
rpm -ivh uniapr-$aprversion-$packageversion.el$rhelversion.$arch.rpm
rpm -ivh uniapr-util-$apuversion-$packageversion.el$rhelversion.$arch.rpm
rpm -ivh unisofia-sip-$sofiaversion-$packageversion.el$rhelversion.$arch.rpm
```

Then, a package containing common data for the client and the server, and a package for the server should follow.

```bash
rpm -ivh unimrcp-common-$universion-$packageversion.el$rhelversion.$arch.rpm
rpm -ivh unimrcp-server-$universion-$packageversion.el$rhelversion.$arch.rpm
```

Next, a package containing the utility tool `unilicnodegen`, required for license deployment.

```bash
rpm -ivh unilicnodegen-$toolversion-$packageversion.el$rhelversion.$arch.rpm
```

Next, a package containing the AWS SDK library.

```bash
rpm -ivh uniawssdk-$awssdkversion-$packageversion.el$rhelversion.$arch.rpm
```

Next, a package containing the libevent library.

```bash
rpm -ivh unilibevent-$libeventversion-$packageversion.el$rhelversion.$arch.rpm
```
Finally, a package containing the Transcribe plugin should follow.

```
rpm -ivh unimrcp-transcribe-$universe-$packageversion.el$rhelversion.noarch.rpm
```
4 Obtaining License

The Transcribe plugin to the UniMRCP server is a commercial product, which requires a license file to be installed.

4.1 License Type

The following license types are available:

- Trial
- Production
- Test and Development

4.2 Node Information

The license files are bound to a node the product is installed on. In order to obtain a license, the corresponding node information needs to be retrieved and submitted for generation of a license file.

Use the installed tool `unilicnodegen` to retrieve the node information.

```
/opt/unimrcp/bin/unilicnodegen
```

As a result, a text file `uninode.info` will be saved in the current directory. Submit the file `uninode.info` for license generation to `services@unimrcp.org` by mentioning the product name in the subject.

4.3 License Installation

The license file needs to be placed into the directory `/opt/unimrcp/data`.

```
cp umstranscribe_*.lic /opt/unimrcp/data
```
5 Obtaining Service Credentials

In order to utilize the AWS Transcribe API, corresponding service credentials need to be retrieved from the AWS console and further installed to the UniMRCP server.

5.1 Create IAM User

Sign up for an AWS account and create an IAM user.

https://docs.aws.amazon.com/transcribe/latest/dg/setting-up-asc.html

5.2 Installation of Credentials

Create a text file aws.credentials in the directory /opt/unimrcp/data.

```
nano /opt/unimrcp/data/aws.credentials
```

Place your AWS IAM user credentials in the following format.

```
{
    "aws_access_key_id": "**********",
    "aws_secret_access_key": "XXXXXXXXXXXXXXXXXXX"
}
```
6 Configuring Server and Plugin

6.1 Plugin Factory Configuration

In order to load the Transcribe plugin into the UniMRCP server, open the file `unimrcpserver.xml`, located in the directory `/opt/unimrcp/conf`, and add the following entry under the XML element `<plugin-factory>`.

Disable other speech recognition plugins, if available. The remaining demo plugins might also be disabled, if not installed.

```xml
<!-- Factory of plugins (MRCP engines) -->
<plugin-factory>
  <engine id="Demo-Synth-1" name="demosynth" enable="false"/>
  <engine id="Demo-Recog-1" name="demorecog" enable="false"/>
  <engine id="Demo-Verifier-1" name="demoverifier" enable="true"/>
  <engine id="Recorder-1" name="mrcprecorder" enable="true"/>
  <engine id="Transcribe-1" name="umstranscribe" enable="true"/>
</plugin-factory>
```

6.2 Logger Configuration

In order to enable log output from the plugin and set filtering rules, open the configuration file `logger.xml`, located in the directory `/opt/unimrcp/conf`, and add the following entry under the element `<sources>`.

```xml
<source name="TRANSCRIBE-PLUGIN" priority="INFO" masking="NONE"/>
```

6.3 Transcribe Plugin Configuration

The configuration file of the plugin is located in `/opt/unimrcp/conf/umstranscribe.xml`. Default settings should be sufficient for general use.

Refer to the Usage Guide for more information.
# 7 Validating Setup

Validate your setup by using the sample UniMRCP client and server applications on the same host. The default configuration and data files should be sufficient for a basic test.

## 7.1 Launching Server

Launch the UniMRCP server application.

```bash
cd /opt/unimrcp/bin
./unimrcpserver
```

In the server log output, check whether the plugin is normally loaded.

```
[INFO]   Load Plugin [Transcribe-1] [/opt/unimrcp/plugin/umstranscribe.so]
```

Next, check for the license information.

```
[NOTICE] UniMRCP Transcribe License

- product name:   umstranscribe
- product version: 1.0.0
- license owner:  
- license type:   trial
- issue date:     2020-06-15
- exp date:       2020-07-15
- channel count:  2
- feature set:    0
```

Next, check that the service account credentials are normally populated.

```
[NOTICE] Read AWS Credentials /opt/unimrcp/data/aws.credentials
```

## 7.2 Launching Client

Note: the optional package `umc-addons` must be installed for this test to work.

Launch the sample UniMRCP client application `umc`.
Run a typical speech recognition scenario by issuing the command `run tsrl` from the console of the `umc` client application.

```
run tsrl
```

This command sends a RECOGNIZE request to the server and then starts streaming a sample audio input file `bookroom.pcm` to recognize.

Check for the NLSML results to be returned as expected.

```
<?xml version="1.0"?>
<result>
  <interpretation grammar="builtin:speech/transcribe" confidence="1">
    <instance>book a room</instance>
    <input mode="speech">book a room</input>
  </interpretation>
</result>
```

Visually inspect the log output for any possible warnings or errors.

Note that utterances are stored in the `var` directory, if the corresponding parameter is enabled in the configuration file `umstranscribe.xml` and/or requested by the client.