
Harris Integration and Installation Manual

MMS Version 12.1

Revision 9.2023

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INTRODUCTION

Revcord offers a fully certified Harris radio system solution. This program integrates a Harris radio system with a Revcord recording system through the use of a network connection to the Harris network switch. Revcord directly records Harris radio system talk groups and conventional channels. The Revcord integration software operates on Revcord release 9.4 or higher, as well as all recent Harris trunked systems. Unlike some other industry recorders, the same Revcord recorder can be used for all customer recording needs. This includes the recording of analog channels, all types of telephony, and VOIP.

Note: The Revcord system has been fully tested in the Harris lab in Lynchburg VA, and is certified by Harris.

Features:

1. Revcord records all types of trunked radio system calls include talkgroup calls, private calls and telephone interconnect (phone) calls. Revcord supports conventional channels connected through the Harris radio system.
2. Revcord fully supports the recording of unencrypted (clear) and encrypted (secure) audio calls. Revcord supports both DES and AES-256 encryption.
3. Revcord handles encryption keys through full support of the OTAR standard.
4. Revcord fully supports phase-1 (CDMA) and phase-2 (TDMA) P25 talkgroups/radios along with conventional channels/radios.
5. For all calls, Revcord captures:
 - a. Talkgroup and radio IDs. Also the trunked site is used by each transmitting radio.
 - b. Harris radio system supplied talkgroup and radio alias names. Optionally, on an individual basis, locally maintained aliases can be assigned which are used instead of the Harris-supplied alias names.
 - c. Various flags, including emergency and secure indications.
 - d. Radio supplied GPS location data (if present).
6. All Harris-supplied data is captured and stored along with the recorded audio. Just like all other metadata, the Harris data is filterable and searchable in the Revcord system.

PRE-INSTALLATION INFORMATION

Requirement Summary

1. Network cable between the Harris system and the recorder.
2. Network connectivity through switches and firewalls.
3. Harris provided configuration parameters.
4. Talkgroup list.
5. Email server information.

Networking Cable

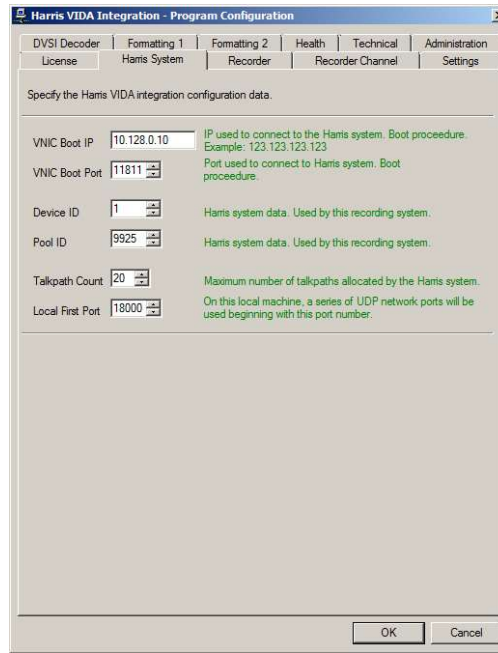
A network connection is needed between the Harris system and the recorder. If the Harris data is on a different network, a separate network CAT5 cable is needed between the Harris switch and the recorder. The recorder's second NIC interface can be used. If the second interface is already in use, then an expansion card will be needed.

Network Connectivity

1. Network ports must be opened through routers and firewalls between the Harris system and the Revcord voice recorder computer. A Harris engineer will configure the Harris network equipment as necessary.
2. The specific network port numbers shall be selected as suitable to the end-customer's network. Revcord is configurable to use any specific network port numbers.
3. Multiple UDP Ports
Many two-way UDP ports are needed. Several ports are used for control messaging traffic. Additional ports are used for each configured Harris talkpath. Revcord recommends opening 200 ports using the ports starting with port 18000. 18000 through 18200.
4. Establishing proper network connectivity is the responsibility of the end-customer and Harris. Revcord does not modify network configurations or establish network connectivity.

Harris Provided Configuration Parameters

Several Harris radio system parameters are required. Many of these settings are entered on a Revcord recorder configuration page as shown below.



1. VNIC Boot IP.
 This is the IP of the Harris radio system's VNIC. The Revcord system uses this port to begin communication with the Harris system.
2. VNIC Boot Port.
 This is the network port used by Harris VNIC for initial communications. The Revcord system uses this port to begin communication with the Harris system.
3. Device ID.
 This is the Harris system's device ID that is to be used by the Revcord recorder.
4. Pool ID.
 This is the Harris system's pool ID that is to be used by the Revcord recorder.
5. Maximum Talkpath Count.
 This is the maximum number of talkpaths allocated by the Harris system for use with the Revcord recorder. This value is requested by the recorder during initialization. The Harris system may alter the actual provided number.

Talkgroup List.

A list is needed of the talkgroups to be recorded. Each talkgroup list entry includes:

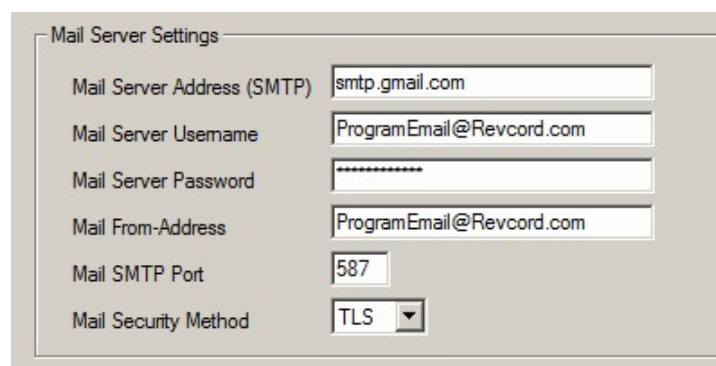
1. P25 talkgroup ID number.
2. The talkgroup's name, as you want it to appear in the recorder's channel list.

Example:

Talkgroup ID	Talkgroup Channel Name
1230	PD Dispatch 1
1231	PD Dispatch 2
45670	FD Alarm
45671	FD Event

Email Server Information

The Revcord Harris system automatically generates alert email messages when problems occur. By default, Revcord uses the gmail email system. If gmail usage is blocked or if the end customer prefers for a different email system be used, Revcord needs alternate email server parameters. See the data listed in the picture below.



The screenshot shows a 'Mail Server Settings' window with the following fields:

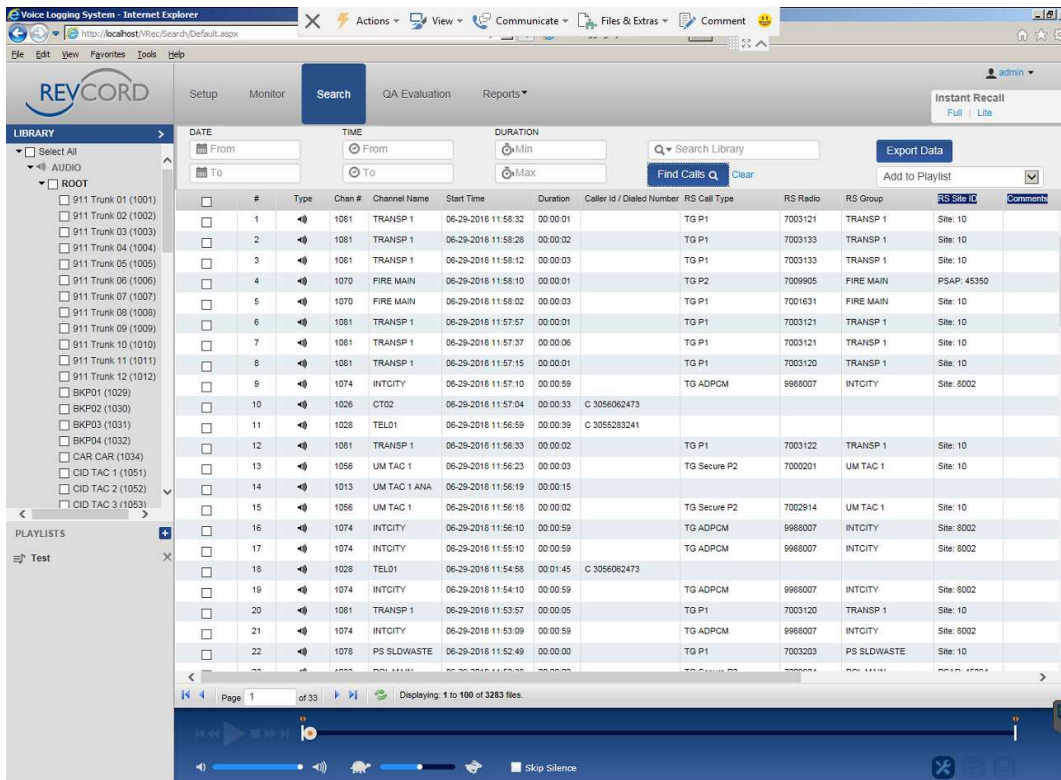
- Mail Server Address (SMTP): smtp.gmail.com
- Mail Server Username: ProgramEmail@Revcord.com
- Mail Server Password: [Redacted]
- Mail From-Address: ProgramEmail@Revcord.com
- Mail SMTP Port: 587
- Mail Security Method: TLS

REVCORD SEARCH FUNCTION

The main Revcord display window is shown below. Most of the calls are from a Harris radio system. The columns “RS Call Type”, “RS Radio”, “RS Group” and “RS Site” show radio data. The program supports eleven display columns for radio data, but the picture below shows only the four main columns.

The “RS Call Type” column shows information about the recorded calls. “P1” indicates a P25 phase 1 (CDMA) call. “P2” indicates phase 2 (TDMA). “ADPCM” shows a conventional radio call. The word “Secure” indicates encrypted calls.

The Revcord recording system supports both Harris radio calls as well as other recorded call types. This is done using the same recorder. Rows 10, 11 and 18 show inbound phone calls. Caller ID data is shown for each of these calls. Row 14 shows a recorded conventional radio call captured with an analog recorder channel. This radio channel is not part of the Harris system.



INSTALLATION INSTRUCTIONS

Harris VIDA VOIP (RoIP) audio requires use of the Revcord Harris integration. It is not possible to record Harris audio without the Revcord integration.

Harris operates using UDP packets addressed specifically between the Revcord recorder and various IPs within the Harris system. TCP packets are NOT used. Usage of a network port-span is NOT required.

Networks at specific customers vary. In some cases Harris data is on a separate network and this network must be provided to the Revcord recorder. In many cases this is as simple as plugging a network cable from the Harris switch/router to a second NIC on the Revcord recorder. In other cases where customers route Harris data over their standard office network, usage of a second NIC is not required.

Required Information:

1. How many radio system talkgroups and conventional channels will be used by the Harris integration?
2. Which specific Revcord recorder channels are to be used for Harris calls?
3. Various Harris system configuration parameters:
 - a. VNIC Boot IP.
 - b. VNIC Boot Port.
 - c. Device ID - To be used by the Revcord recorder.
 - d. Pool ID - To be used by the Revcord recorder.
 - e. Maximum number of talkpaths allocated by the Harris system for use with the Revcord recorder.
 - f. Local First Port – Default 18000.

Changes To Database

Two additional database columns must be added to the t_CallInfo database table. These are: InterimFileName and SecureFileName. Both fields are varchar 100.

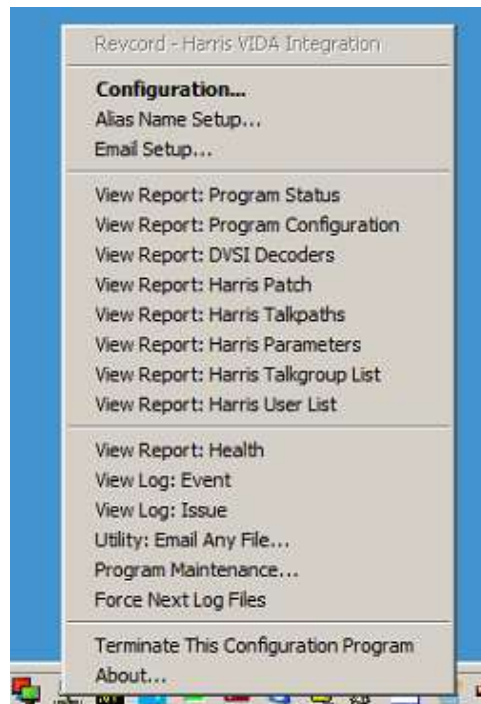
To create these database fields, the following code must be run in SQL:

```
USE VoiceRec
ALTER TABLE t_CallInfo ADD InterimFileName varchar(100)
ALTER TABLE t_CallInfo ADD SecureFileName varchar(100)
```

HARRIS PROGRAM MAIN MENU

Operator access to the Harris integration occurs through the program's main menu as shown below. End-customers never need to access the features in the menu, but they are displayed here to show the depth of program features.

A total of nine reports are available to show various program statuses and data. These are used by Revcord personnel to validate correct program operation at each end-customer.



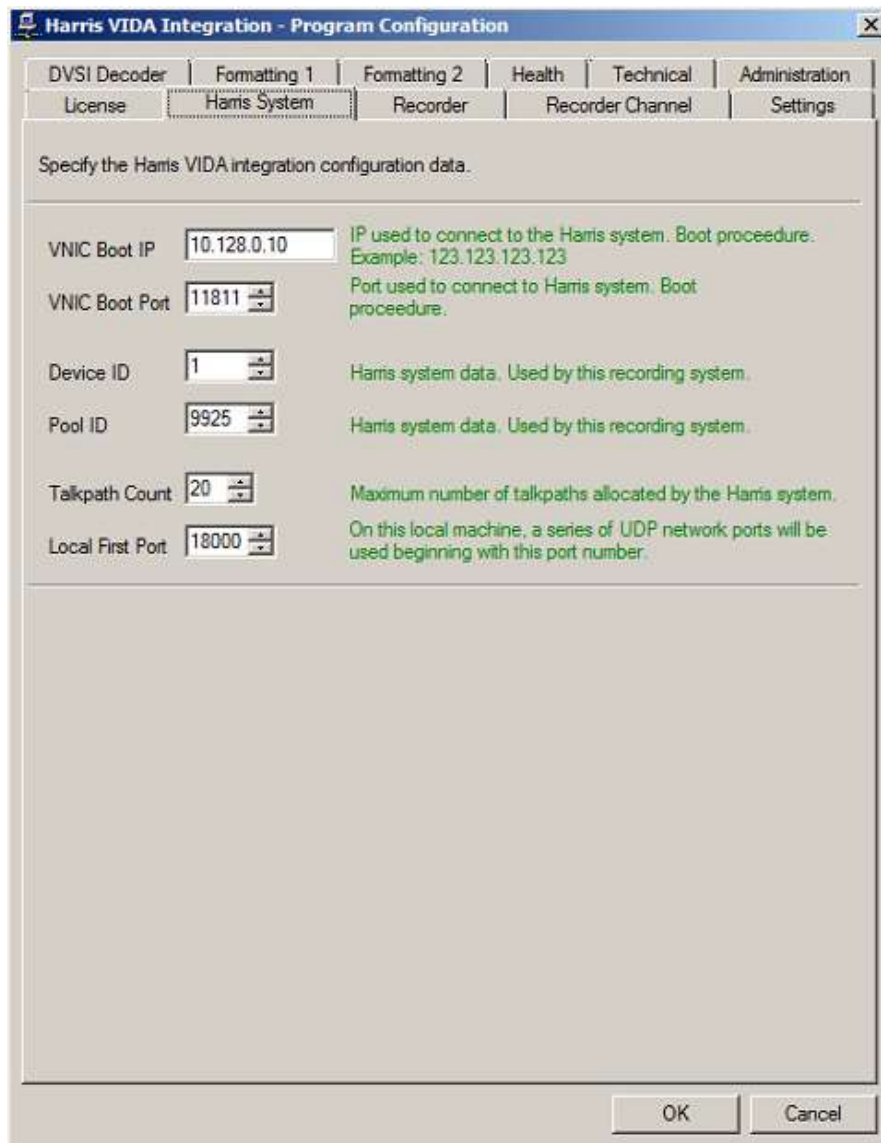
Configuration

Revcord configures the Harris integration program. Most parameters are adjusted when the program is first installed and then rarely (maybe never) adjusted again.

The windows detailed below, show the depth of options and ease of setup within the Revcord program. End-customers never need to access these windows or this information. The Revcord integration operates automatically.

Configuration: Harris System

The “Harris System” configuration window configures specific information to tailor the program to an individual Harris system.



Harris VIDA Integration - Program Configuration

DVSI Decoder | Formatting 1 | Formatting 2 | Health | Technical | Administration
 License | **Harris System** | Recorder | Recorder Channel | Settings

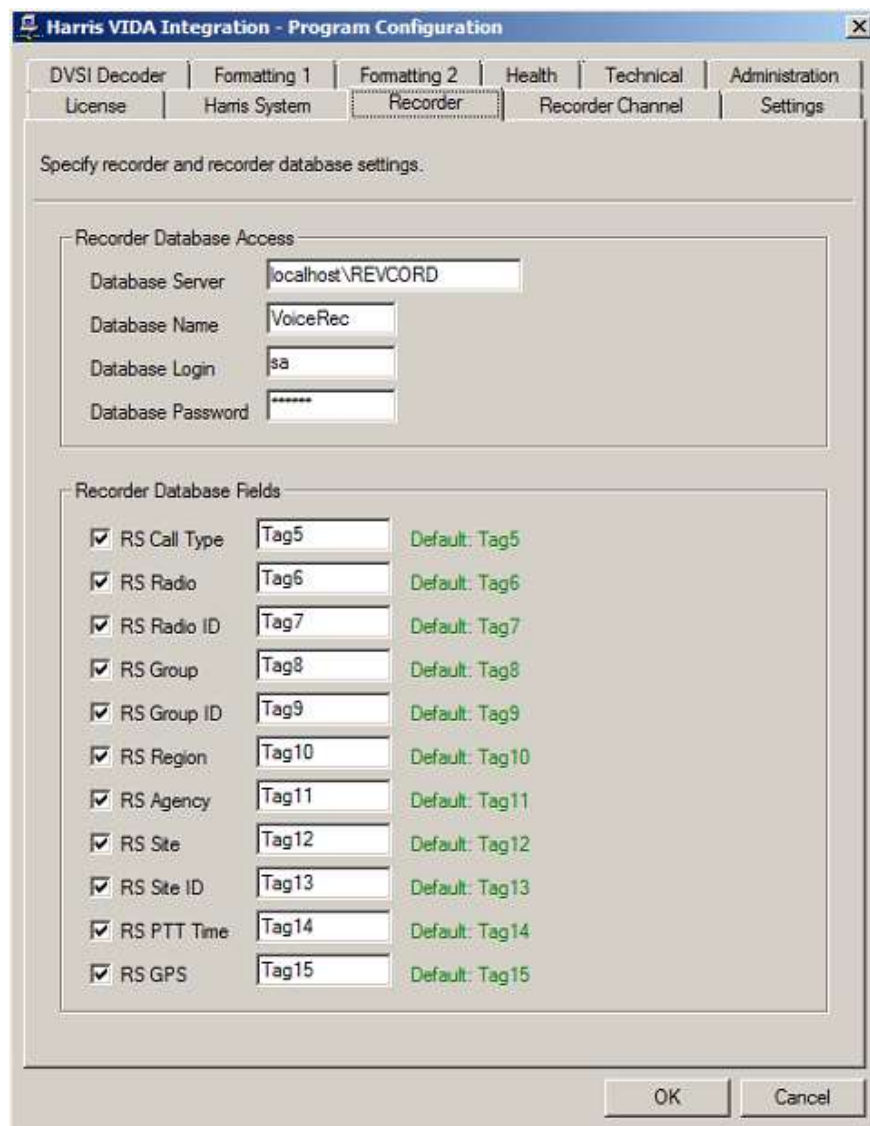
Specify the Harris VIDA integration configuration data.

VNIC Boot IP	<input type="text" value="10.128.0.10"/>	IP used to connect to the Harris system. Boot procedure. Example: 123.123.123.123
VNIC Boot Port	<input type="text" value="11811"/>	Port used to connect to Harris system. Boot procedure.
Device ID	<input type="text" value="1"/>	Harris system data. Used by this recording system.
Pool ID	<input type="text" value="9925"/>	Harris system data. Used by this recording system.
Talkpath Count	<input type="text" value="20"/>	Maximum number of talkpaths allocated by the Harris system.
Local First Port	<input type="text" value="18000"/>	On this local machine, a series of UDP network ports will be used beginning with this port number.

OK Cancel

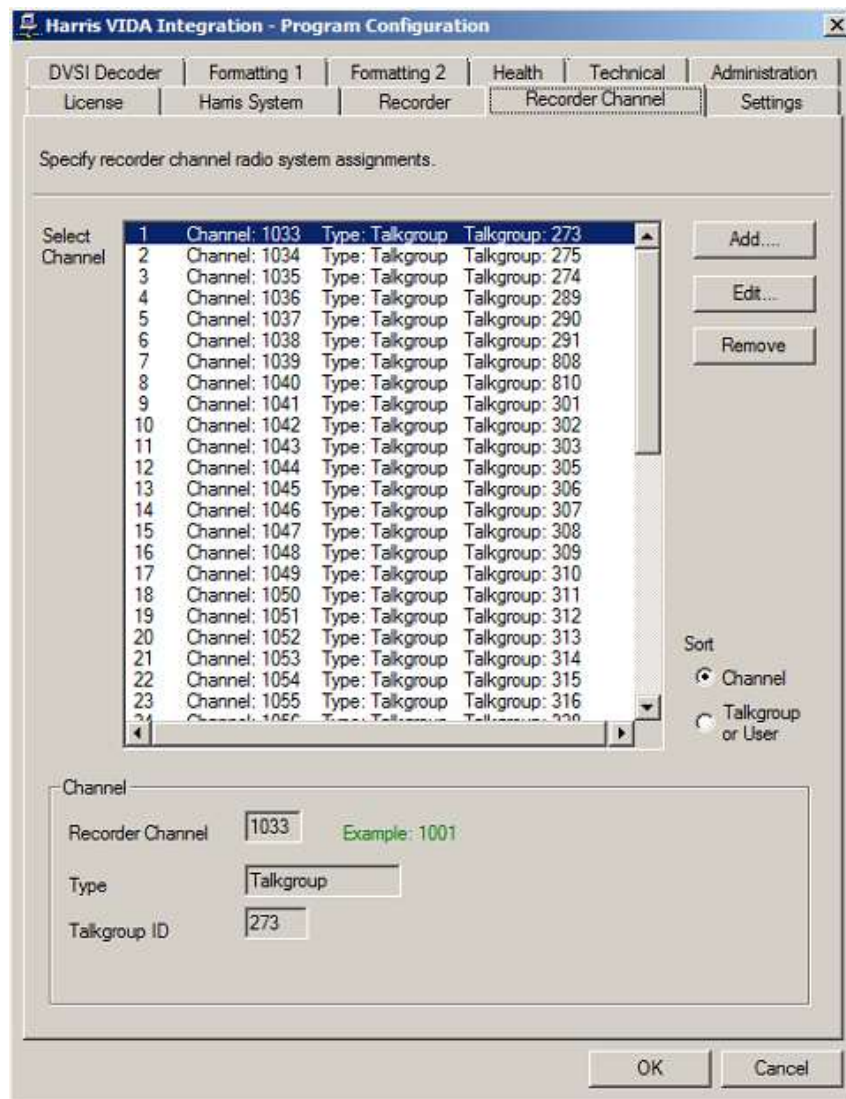
Configuration: Recorder

The “Recorder” configuration window configures specific information to tailor the program to an individual Revcord recorder.



Configuration: Recorder Channel

The “Recorder Channel” configuration window assigns the trunked talkgroups and conventional channels to be recorded by the Revcord system. Revcord registers these entries with the Harris system allowing audio recording to take place.



Configuration: Settings

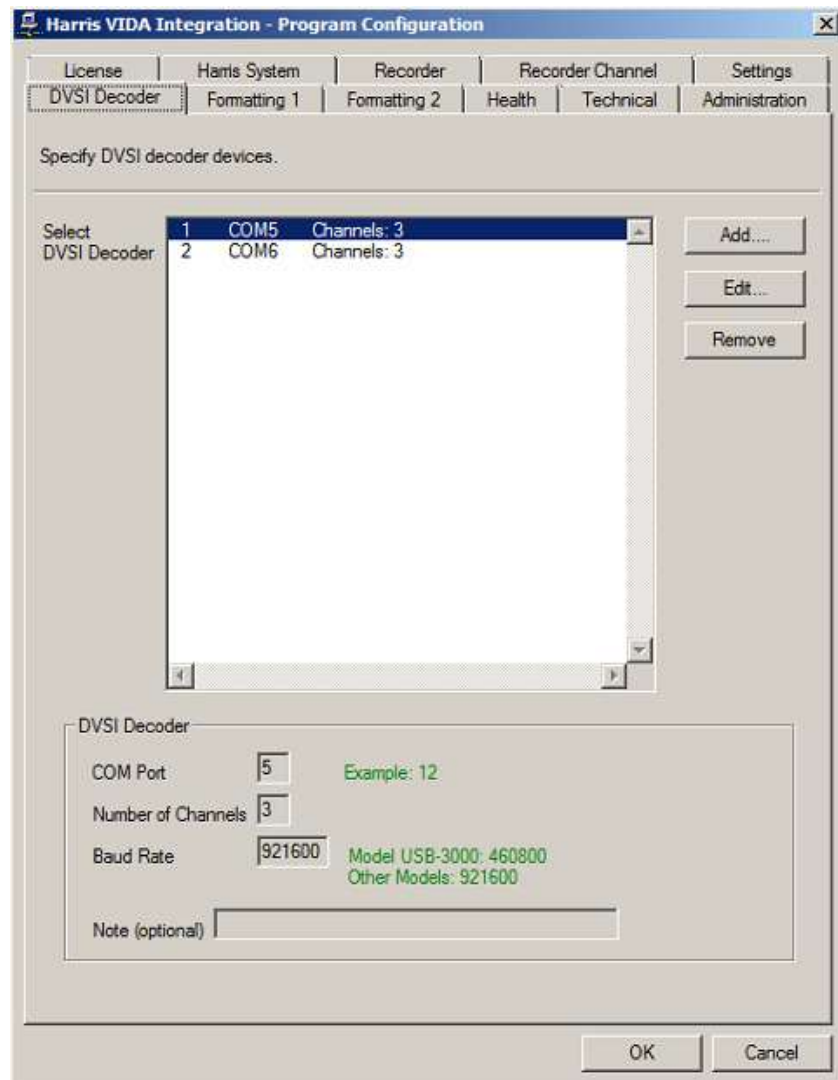
The “Settings” configuration window configures specific internal program information that is rarely changed. These entries are used to handle special case situations.



Configuration: DVSI Decode

The “DVSI Decoder” configuration window configures the system’s audio call codec decoders. These are used by the system to decode the special P25 digital codes used to encode all audio on P25 systems.

The system shown in this picture uses 6 channels of decoders. Typically, 12 channels or more are utilized.

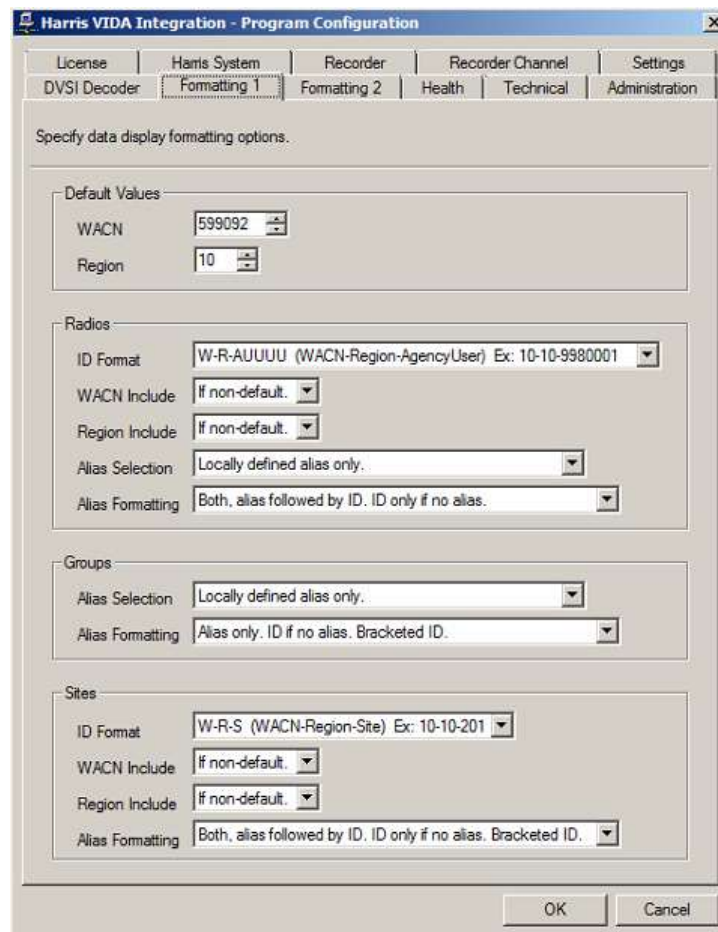


Configuration: Formatting 1

The “Formatting 1” configuration window configures the program’s operation and data formatting. Options and formats are available to tailor to the needs of specific end-customers.

P25 supports local and roaming radios. Normally local radio IDs are displayed without the default WACN and region values. The WACN and region values are only displayed for roamer IDs. Several options are available to adjust the operation and formatting of this data.

Various options are available for displaying and formatting radio, talkgroup and site IDs. Several alias related options are also available.

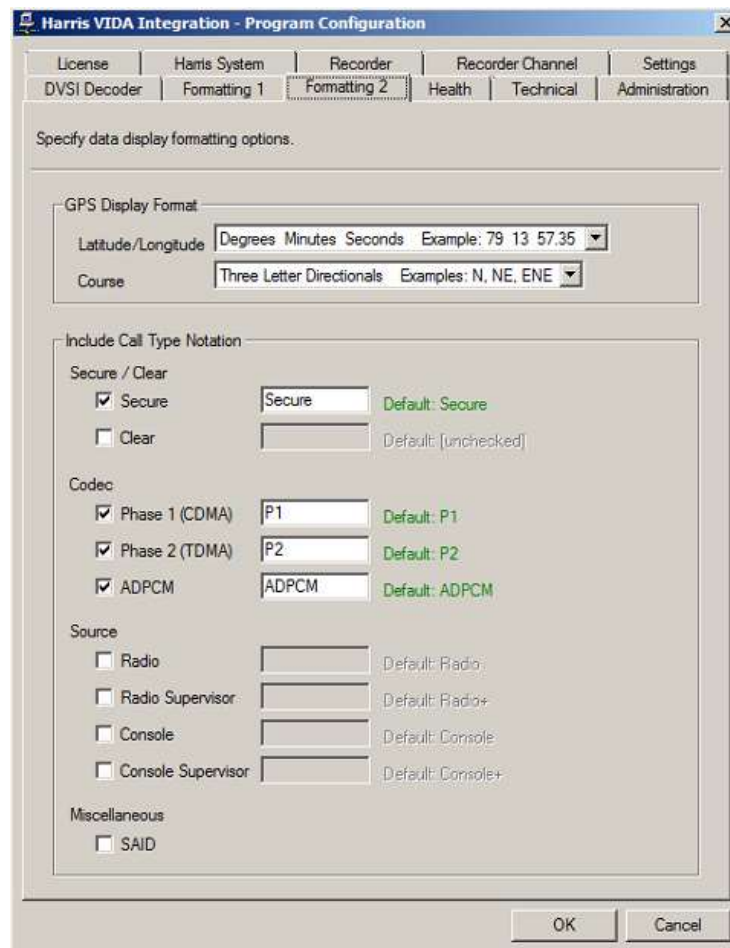


Configuration: Formatting 2

The “Formatting 2” configuration window configures the program’s operation and data formatting. Options and formats are available to tailor to the needs of specific end-customers.

For Harris systems using radio GPS location updates, Revcord captures the GPS location and heading at each radio transmission. Several options select the formats related to the GPS location and heading.

The “RS Call Type” display column is capable of displaying various types of information for each call. Some fields, like “emergency” are always displayed when the situation dictates. Other fields are optional and may be selected for inclusion and configured.



Harris Integration – Configuration Data

There are several aspects to the Harris integration configuration. This configuration data is the exact same data that is required for any brand of voice recorder.

1. Configure the Harris system to use a voice recorder.
2. The Harris system needs to be configured to allow a voice recorder (Revcord) to connect and receive audio and metadata. This configuration is performed on the Harris system by the end-customer or their Harris expert.
3. Obtain certain Harris or networking data that is needed by the recording system.
4. The Harris configuration data is used by the Revcord software to communicate and operate with the Harris system. The specific configuration parameters are listed below.
5. List of talkgroups to record.
6. Secure (encryption) data. If the end-customer wants to record encrypted talkgroups, specific parameters involving the Harris encryption system will be needed. Contact Revcord for specific details.

Configuration Parameters:

1. VNIC Boot IP --- IP used to connect to the Harris system during the boot procedure.
2. This is the IP that Revcord contacts when first establishing communication. The Harris system is a complex system comprised of several computers. This is the specific IP that is needed.
3. VNIC Boot Port --- Network port used to connect to the Harris system during the boot procedure.
4. Device ID --- Harris “device ID” used by the recording system. The default value is: 1
5. Pool ID --- Harris “pool ID” used by the recording system. The default value is: 9925
6. Talkpath Count --- Maximum number of talkpaths allocated by the Harris system for use by the recorder. This is also the maximum number of simultaneous calls to the recorder that the Harris system will support. Example value: 20
7. Local First Port --- The end-customer network personnel may need to provide this number. The Harris system and the recording system communicate with each other using a series of network ports. These ports must be open through firewalls and routers between the Harris system and the Revcord recorder. Open for bi-direction UDP traffic. The value of this parameter is the value of the first port in the series of ports. Example: 18000. (The number of ports used is equal to the “Talkpath Count” parameter plus 15.)
8. WACN --- The system’s WACN value. This is a parameter to identify specific P25 trunking systems.
9. Region --- The system’s region value. This is a parameter, used along with the WACN, to identify specific P25 trunking systems.