Cisco D9854 Advanced Program Receiver Software Version 3.96 Installation and Configuration Guide

Please Read This Entire Guide

Veuillez lire entièrement ce guide

Bitte das gesamte Handbuch durchlesen

Sírvase leer completamente la presente guía

Si prega di leggere completamente questa guida

Important

Please read this entire guide before you install or operate this product. Give particular attention to all safety statements.

Important

Veuillez lire entièrement ce guide avant d'installer ou d'utiliser ce produit. Prêtez une attention particulière à toutes les règles de sécurité.

Zu beachten

Bitte lesen Sie vor Aufstellen oder Inbetriebnahme des Gerätes dieses Handbuch in seiner Gesamtheit durch. Achten Sie dabei besonders auf die Sicherheitshinweise.

Importante

Sírvase leer la presente guía antes de instalar o emplear este producto. Preste especial atención a todos los avisos de seguridad.

Importante

Prima di installare o usare questo prodotto si prega di leggere completamente questa guida, facendo particolare attenzione a tutte le dichiarazioni di sicurezza.

Notices

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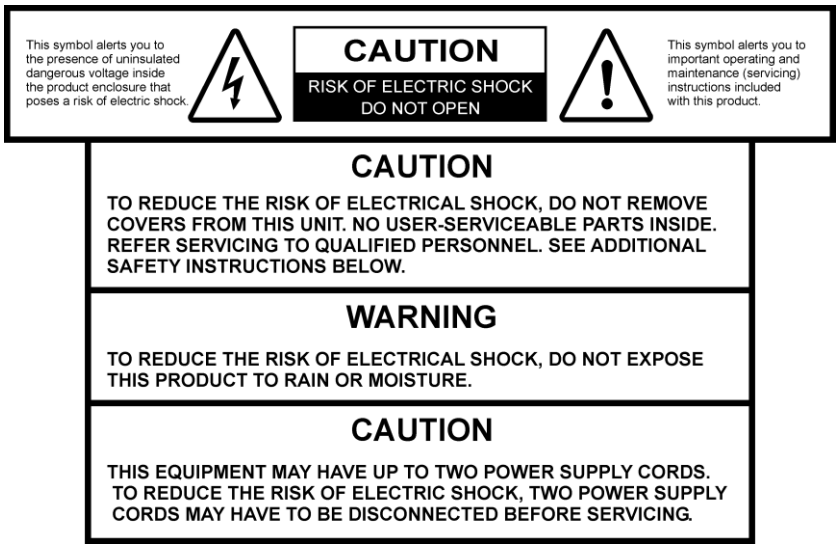
Safety Precautions



1 Read Instructions – All the safety and operating instructions should be read before the product is operated.

2 Retain Instructions – The safety and operating instructions should be retained for future reference.

3 Heed Warnings – All warnings on the product and in the operating instructions should be adhered to.

4 Follow Instructions – All operating and use instructions should be followed.

5 Cleaning – Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

Exception: A product that is meant for uninterrupted service and that, for some specific reason, such as the possibility of the loss of an authorization code for a CATV converter, is not intended to be unplugged by the user for cleaning or any other purpose, may exclude the reference to unplugging the product in the cleaning description above.

6 Attachments – Do not use attachments not recommended by the product manufacturer as they may cause hazards.

7 Water and Moisture – Do not use this product near water – for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.

Accessories – Do not place this product on an unstable cart, stand, tripod, bracket, or table.

The product may fall, causing serious injury to a child or adult, and serious damage to the product.

Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.

8 A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

PORTABLE CART WARNING

9 Ventilation – Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

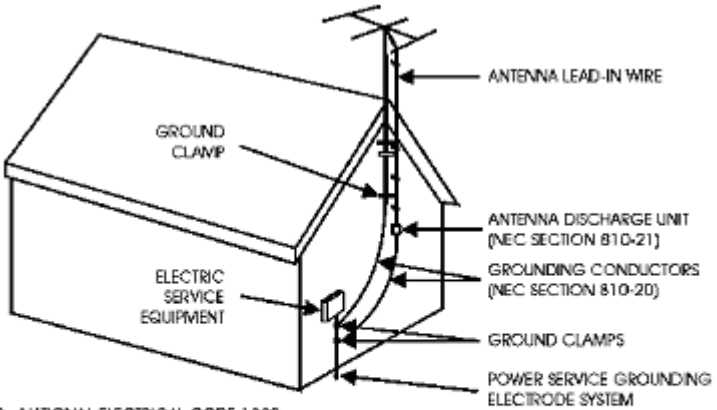
10 Power Sources – This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

11 Grounding or Polarization – This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. Alternate Warnings – This product is equipped with a three-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

12 Power-Cord Protection – Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

13 Protective Attachment Plug – The product is equipped with an attachment plug having overload protection. This is a safety feature. See Instruction Manual for replacement or resetting of protective device. If replacement of the plug is required, be sure the service technician has used a replacement plug specified by the manufacturer that has the same overload protection as the original plug.

14 Outdoor Antenna Grounding – If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.



TO CATV SYSTEM INSTALLER
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the National Electrical Code (NEC) that provides guidelines for proper grounding, and in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of entry as practical.

15 Lightning – For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

16 Power Lines – An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

17 Overloading – Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

18 Object and Liquid Entry – Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

19 Servicing – Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

20 Damage Requiring Service – Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- **a** When the power-supply cord or plug is damaged,
- **b** If liquid has been spilled, or objects have fallen into the product,
- **c** If the product has been exposed to rain or water,
- **d** If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation,
- **e** If the product has been dropped or damaged in any way, and
- **f** When the product exhibits a distinct change in performance – this indicates a need for service.

21 Replacement Parts – When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

22 Safety Check – Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

23 Wall or Ceiling Mounting – The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

24 Heat – The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

Protect yourself from electric shock and your system from damage!

- This product complies with international safety and design standards. Observe all safety procedures that appear throughout this guide, and the safety symbols that are affixed to this product.
- If circumstances impair the safe operation of this product, stop operation and secure this product against further operation.

Avoid personal injury and product damage! Do not proceed beyond any symbol until you fully understand the indicated conditions!

You will find this symbol on the product and/or in the literature that accompanies this product.

It indicates important operating or maintenance instructions.

You may find this symbol on the product and/or in the literature that accompanies this product.

It indicates a live terminal; the symbol pointing to the terminal device.

You may find this symbol on the product and/or in the literature that accompanies this product.

It indicates a protective earth terminal.

You may find this symbol on the product and/or in the literature that accompanies this product.

It indicates excessive or dangerous heat.

Power

- Important! This is a Class I product. You must earth this product. This equipment may have up to two power supply cords. To reduce the risk of electric shock, two power supply cords may have to be disconnected before servicing.
- This product plugs into a socket-outlet. The socket-outlet must be near this product, and must be easily accessible.
- Connect this product only to the power source that is indicated on the rear panel of this product.
- If this product does not have a mains power switch, the power cord serves this purpose

Enclosure

- Do not allow moisture to enter this product.
- Do not open the enclosure of this product unless otherwise specified.
- Do not push objects through openings in the enclosure of this product.

Cables

- Always disconnect all power cables before servicing this product.
- Always pull on the plug or the connector to disconnect a cable. Never pull on the cable itself.
- Do not walk on or place stress on cables or plugs.

Factory service

- Refer service only to service personnel who are authorized by the factory.

Règles de sécurité

Protégez-vous des risques d'électrocution et protégez votre système contre les endommagements éventuels.

Ce produit respecte les standards internationaux de sécurité et de conception. Veuillez observer toutes les procédures de sécurité qui apparaissent dans ce guide, ainsi que les symboles de sécurité qui figurent sur le produit.

Si, du fait des circonstances, ce produit cesse de fonctionner normalement, cessez de l'utiliser et empêchez-en l'utilisation future.

Évitez le risque de blessures et de dommages aux produits! Ne procédez à aucune tâche tant que vous n'aurez pas entièrement assimilé les conditions indiquées par un symbole!

Ce symbole figure dans la documentation accompagnant ce produit. Il indique d'importantes instructions de fonctionnement ou d'entretien.

Ce symbole peut être attaché à ce produit. Il indique une borne sous tension; la direction indique la borne.

Ce symbole peut être attaché à ce produit. Il indique une borne de terre de protection.

Ce symbole peut être attaché à ce produit. Il indique une température excessive ou dangereuse.

Alimentation

- Important! Ce produit fait partie de la classe I. Vous devez le mettre à la terre.
- Ce produit se branche dans une prise murale. Cette dernière doit être placée à proximité du produit et doit être facilement accessible.
- Ne branchez ce produit qu'à la source d'alimentation indiquée sur son panneau arrière.
- Si ce produit n'a pas d'interrupteur d'alimentation générale, le cordon d'alimentation remplit ce rôle.

Enceinte

- Ne laissez pas l'humidité pénétrer dans ce produit.
- N'ouvrez pas l'enceinte de ce produit, sauf instructions contraires.
- Ne forcez pas d'objets dans les ouvertures du boîtier.

Câbles

- Débranchez toujours tous les cordons d'alimentation avant de réparer ce produit.
- Tirez toujours sur la prise ou le connecteur pour débrancher un câble. Ne tirez jamais directement sur le câble.

- Ne marchez pas sur les câbles ou les prises et n'y exercez aucune pression.

Réparations effectuées à l'usine

- Ne confiez les travaux de réparations qu'au personnel autorisé par l'usine.

Sicherheitsvorkehrungen

Schützen Sie sich gegen elektrischen Schlag, und Ihr Gerät gegen Beschädigung!

- Dieses Gerät entspricht internationalen Sicherheits-und Ausführungsnormen. Beachten Sie alle in diesem Handbuch enthaltenen Sicherheitshinweise sowie die am Gerät angebrachten Warnzeichen.
- Sollten örtliche Umstände den sicheren Betrieb dieses Gerätes beeinträchtigen, schalten Sie es ab und sichern es gegen weitere Benutzung.

Vermeiden Sie Verletzungen sowie Beschädigung des Gerätes! Wenn Sie zu einem der folgenden Warnzeichen gelangen, nicht weiterarbeiten, bis Sie seine Bedeutung voll verstanden haben!

Dieses Symbol erscheint auf dem Gerät und/oder in der ihm beiliegenden Literatur. Es bedeutet wichtige, zu beachtende Betriebs-oder Wartungsanweisungen.

Wenn dieses Zeichen am Gerät angebracht ist, warnt es vor einer spannungsführenden Stelle.

Dieses Symbol kennzeichnet auf dem Gerät die Anschlußstelle der Sicherheitserde.

Wenn dieses Zeichen am Gerät angebracht ist, warnt es vor heißen Stellen, die zu Verbrennungen führen können.

Netzspannung

- Wichtig! Dieses Gerät ist ein Produkt der Schutzklasse I. Es muß geerdet werden.
- Das Gerät ist an einer Steckdose anzuschließen. Diese muß sich leicht zugänglich in unmittelbarer Nähe des Gerätes befinden.
- Die Netzversorgung muß den auf der Rückwand des Gerätes angegebenen Werten entsprechen.
- Falls sich kein Hauptschalter am Gerät befindet, dient das Netzkabel diesem Zweck.

Gehäuse

- Das Innere des Gerätes ist vor Feuchtigkeit zu schützen.
- Das Gehäuse ist nicht zu öffnen.
- Niemals einen Gegenstand durch die Gehäuseöffnungen einführen!

Kabel

- Vor jeglicher Wartung des Gerätes sind alle Kabel zu entfernen.
- Hierzu grundsätzlich am Stecker oder Verbindungsstück und niemals am Kabel selber ziehen.
- Nicht auf die Kabel oder Stecker treten oder diese einer Zugbelastung aussetzen.

Hersteller-Wartung

- Wartungsarbeiten sind nur durch vom Hersteller autorisierte Techniker vorzunehmen.

Precauciones de seguridad

¡Protéjase contra la electrocución y proteja su sistema contra los daños!

Este producto cumple con los criterios internacionales de seguridad y diseño. Observe todas los procedimientos de seguridad que aparecen en esta guía, y los símbolos de seguridad adheridos a este producto.

Si las circunstancias impiden la operación segura de este producto, suspenda la operación y asegure este producto para que no siga funcionando.

¡Evite lastimarse y evite dañar el producto! No avance más allá de cualquier símbolo hasta comprender completamente las condiciones indicadas!

Encontrará este símbolo en el impreso que acompaña a este producto. Este símbolo indica instrucciones importantes de funcionamiento o mantenimiento.

Es posible que este símbolo esté pegado al producto. Este símbolo indica un terminal vivo, la flecha apunta hacia el aparato terminal.

Podría encontrar este símbolo pegado al producto. Este símbolo indica un terminal de protección de tierra.

Podría encontrar este símbolo pegado al producto. Este símbolo indica calor excesivo o peligroso.

Alimentación

- Importante! Este es un producto de Clase I. Tiene que estar conectado a tierra.
- Este producto se conecta a un enchufe. El enchufe necesita estar cerca del producto y ser fácilmente accesible.
- Conecte este producto únicamente a la fuente de suministro eléctrico indicada en el panel posterior del producto.
- Si el producto no tiene interruptor para la linea principal, utilice el cordón toma de corriente para este propósito.

Cubierta

- No permita que la humedad penetre en este producto.
- No abra la cubierta del producto a menos que se indique lo contrario.
- No introduzca objetos a través de las aberturas de la cubierta del producto.

Cables

- Siempre desconectar todos los cables eléctricos antes de revisar o reparar el producto.
- Tire siempre del enchufe o del conector para desconectar un cable. Nunca tire del cable mismo.
- No camine ni aplique presión sobre los cables o enchufes..

Revisión y reparación de fábrica

- Solo personal aprobado por la fábrica puede darle servicio al producto.

Precauzioni di sicurezza

Proteggetevi da scosse elettriche e proteggete il vostro sistema da possibili danni!

- Questo prodotto soddisfa le norme internazionali per la sicurezza ed il design. Seguite tutte le procedure di sicurezza contenute in questa guida e i simboli di sicurezza applicati al prodotto.
- Se circostanze avverse compromettono la sicurezza d'uso di questo prodotto, interrompetene l'uso e assicuratevi che il prodotto non venga più utilizzato.

Evitare infortuni alla persona e danni al prodotto! Non procedere oltre a qualunque simbolo fino a quando non si siano comprese pienamente le condizioni indicate!

Questo simbolo, che appare nella letteratura di accompagnamento del prodotto, indica importanti istruzioni d'uso e di manutenzione.

Sul prodotto potete vedere questo simbolo che indica un dispositivo terminale sotto tensione; la freccia punta verso il dispositivo.

Potrete trovare il presente simbolo applicato a questo prodotto. Questo simbolo indica un terminale protettivo di messa a terra.

Potrete trovare il presente simbolo attaccato a questo prodotto. Questo simbolo indica un calore eccessivo o pericoloso.

Alimentazione

- Importante! Questo prodotto è di Classe I. Va messo a terra.
- Questo prodotto si inserisce in una presa di corrente. La presa di corrente deve essere in prossimità del prodotto, e deve essere facilmente accessibile.

- Collegare questo prodotto solamente alla fonte di alimentazione indicata sul pannello posteriore di questo prodotto.
- Se questo prodotto non è dotato di un interruttore principale, il cavo di alimentazione funge a questo scopo.

Chiusura

- Proteggete da umidità questo prodotto.
- Non aprire la chiusura di questo prodotto a meno che non sia specificato diversamente. Non inserire oggetti attraverso le fessure della chiusura.

Cavi

- Staccare sempre tutti i cavi di alimentazione prima di svolgere l'assistenza tecnica al prodotto.
- Per scollegare un cavo tirate la spina o il connettore, non tirare mai il cavo stesso.
- Non calpestare o sottoporre a sollecitazioni i cavi o le prese.

Riparazionoi di fabbrica

- Per le riparazioni contattate solamente personale tecnico autoizzato dalla fabbrica.

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About This Manual

Objective

This manual describes how to install, use and maintain the Cisco® D9854 Advanced Program Receiver.

Note: The manual describes all available options for the D9854 receiver. Your D9854 receiver may only have some of the features described in this manual.

Audience

The audience of this manual includes users (operators) and service personnel who are responsible for the installation, configuration, operation, monitoring and service of the D9854 receiver.

Required Knowledge

To use this documentation, the user should have a basic knowledge of the technology used in relation to this product. Service personnel should have additional skills and be familiar with cabling, electronic circuitry, and wiring practices.

This manual is intended for operators who are responsible for the configuration, remote operation and maintenance of the D9854 receiver.

1

Quick Setup - Read Me First!

Overview

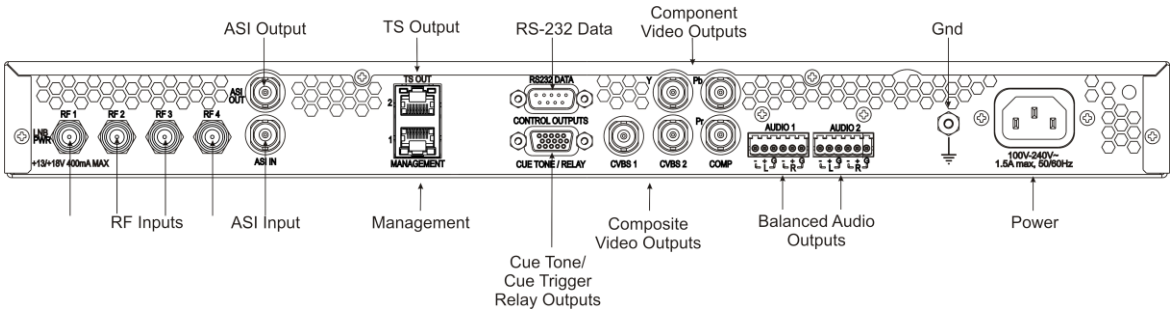
This chapter provides a quick setup for your D9854 receiver. If you are unsure about which receiver settings to use, contact your local service provider for assistance.

In This Chapter

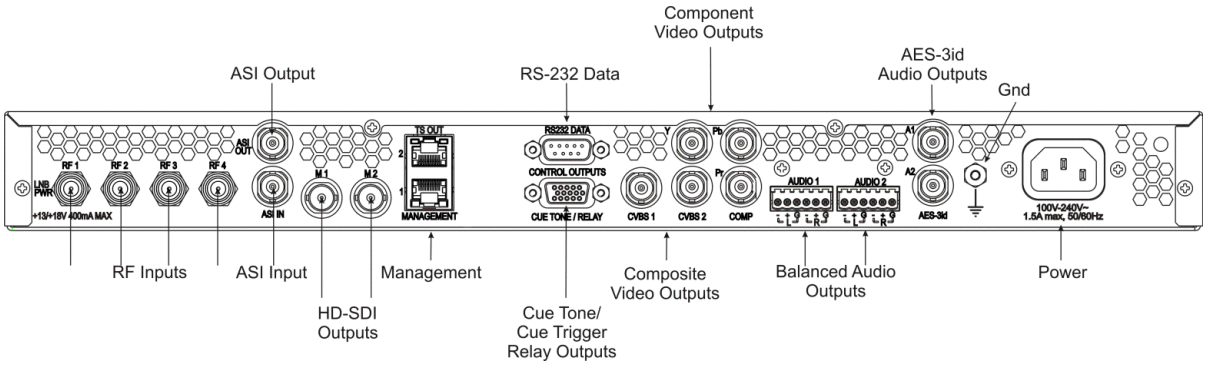
- Connecting the Receiver to Other Equipment 2
- Setting up for Network Connection 4
- Quick Setup Instructions for RF Acquisition 5
- Assigning a Program Channel to a PE (Program Entry) 7
- ASI Out 8
- Setting up the HD-SDI Outputs (SDI Model, with SD/HD-SDI and AES outputs) 9
- Setting up the MOIP Outputs (Base Model) 10
- Setting the DPM Mode 11

Connecting the Receiver to Other Equipment

The following displays the rear panel of the D9854 Base Model:



The following displays the rear panel of the D9854 SDI Model, with SD/HD-SDI and AES outputs:



1. Connect the L-Band signal to RF1. 13V or 18V LNB power is only available on the RF1 port. The factory default setting for LNB power is OFF.
2. Connect the ASI OUT port to an ASI device for digital tier applications.
3. Connect the Composite Video Output to a video monitor.
4. Connect the terminal block balanced audio outputs labeled AUDIO 1 and AUDIO 2 to monitoring equipment.
5. Apply power by connecting the receiver to a power outlet. The message "Application Starting" will appear on the front panel. The boot process approximately 1 minute for the unit to initialize. When ready, the front panel display shows the startup screen.
6. The Ethernet Management port does not currently provide SNMP or management control. It is used for software application downloads only.
7. Connect the HD-SDI outputs (M1 and M2) to HD compatible signal processing equipment or HD signal monitoring equipment, if applicable.

Maintenance of EMC Compliance

The power cord (consisting of appliance coupler, flexible cord, and plug) supplied with this product meets the requirements for use in the country for which this product was purchased. In general, the power cord must be approved by an acceptable, accredited agency responsible for evaluation in the country where the product will be used.

Double-shielded (braid/foil or braid/braid) cables should be used for all ASI I/O and RF inputs. Single-shield cables are acceptable for all other inputs and outputs. For terminal block (Alarms) I/O, no shielding is required.

Setting up for Network Connection

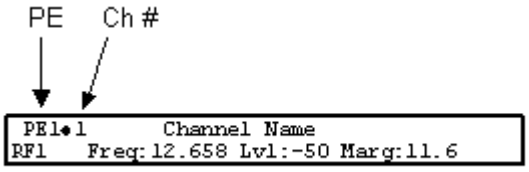
1. Press **MENU** to display the Main menu.
2. Press ► to go to the Setup menu. Press **SELECT**. Press ► twice to select the IP menu. Press **SELECT** twice to go to the IP menu.
3. Use the ▲▼ arrow keys to navigate up and down the IP menu, and the ◄► arrow keys to move across the IP menu to set the IP Address, Mask and Gateway parameters. Use the number keys to directly enter numbers in the fields. For more information on keypad operation, see Keypad Convention.
4. Press **SELECT** each time to save the changes. Press **MENU** four times to return to the startup screen.

Quick Setup Instructions for RF Acquisition

1. Press **MENU** to display the Main menu.
2. Press ► to go to the Setup menu. Press **SELECT**. Press ► to move to the TS Input menu. Press SELECT.
3. To setup the ASI input port, go to step 4. To setup the RF1 input port, go to step 5.
4. Press **SELECT** three times. Press ▼ to set the ASI port to Act (Activate). Press **SELECT**. Go to step 11.
5. Press **SELECT**. Press ► to go to RF1. Press **SELECT** twice. Use ▼ to set the RF1 port parameter to Act (Activate). Press **SELECT**.
6. Press ▼ to move to the LO1, LO2, Crossover menu. Verify these parameters for your application. If no change is needed, go to Step 7. If required, you may modify these settings. Use ► to move to the parameter that you want to modify. Press **SELECT**. Use the numerical keypad to enter new frequencies. Press **SELECT**.
7. Press ▼ five times to move to the Modulation and Rolloff menu. Press **SELECT**. Use ▲▼ to choose DVB-S or DVB-S2. Press **SELECT**. If DVB-S2 is used, press ► to choose Rolloff. Press **SELECT**. Use ▲▼ to choose the value. Press **SELECT**.
8. Press ▲ to move to the Freq., Sym Rate, and FEC menu. Press **SELECT**. Enter the RF frequency. Press **SELECT**. Press ► to move to the Sym. Rate menu. Press **SELECT**. Enter the symbol rate. Press **SELECT**. If DVB-S2 is used, proceed to step 9. If DVB-S is used, press ► to set up the FEC. Press **SELECT**. Use ▲▼ to select AUTO. Press **SELECT**.
9. Press ▼ twice to move to the Net ID menu. Press ► to choose Net ID. Press **SELECT**. Enter the value. Press **SELECT**.
10. Press ▼. Press **SELECT**. Use ▲▼ to change the LNB power, if needed. Only the RF1 port is capable of providing 13V or 18V. Press **SELECT**.
11. Press **MENU** three times. Press ► to move to Save & Exit. Press **SELECT**. Save & Exit will return you to the Main: Setup menu; Abandon & Exit will go back to the last menu accessed with the original parameters; Cancel will go back to the last menu accessed with changes saved.
12. The receiver will search for the signal and display "Acquisition Successful". It will find the first available channel on the network. Press **MENU** twice to return to the start-up menu.

13 If the front LED is solid green, the unit is authorized. Proceed with Assigning a Program Channel to a PE (Program Entry). If the front LED is flashing green, the unit is unauthorized. Please contact your service provider and provide the Tracking ID number for authorization. The Tracking ID can be found on the **ABOUT** menu. To locate the Tracking ID, press **MENU**, press ► twice, and then press **SELECT** twice. Make a note of the Tracking ID number. Press **MENU** three times to return to the startup screen.

Assigning a Program Channel to a PE (Program Entry)



1. At the start-up screen, PE1 is initially displayed.
2. Press **ADV** and use the ▲▼ keys to scroll through the available program entries.
3. Press **ADV** again to select the channel number.
4. Use the ▲▼ keys to scroll through the available program channels or directly enter the channel number using the 0 to 9 keys; press **SELECT** to save the channel selection.

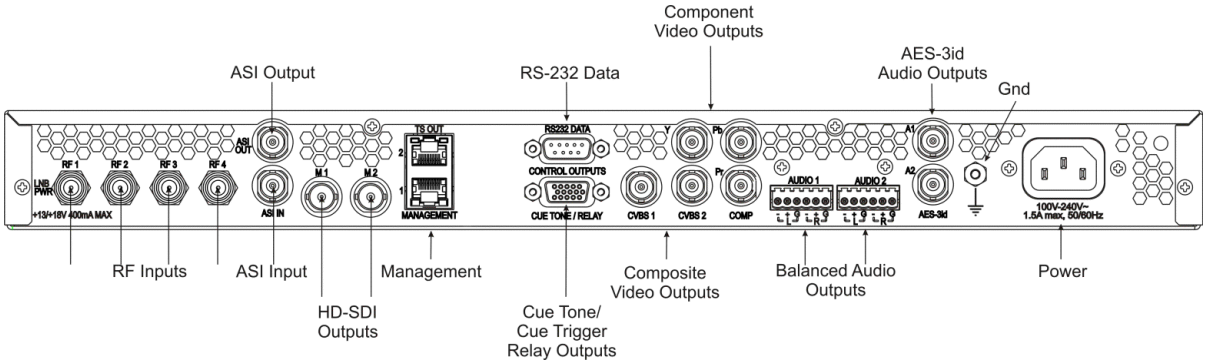
Important: In addition to ASI out availability on both models, your D9854 will be configured for either HD-SDI or MOIP output. Please follow the procedure for your model to configure the outputs.

ASI Out

1. Press **MENU** to move to the MAIN MENU.
2. Press ► to move to the Setup menu. Press **SELECT**.
3. Press ▼ to move to the Outputs menu. Press **SELECT**.
4. Press ► to move to the TS Out menu. Press **SELECT**.
5. Press **SELECT** to access the ASI menu. Press ▼. Press **SELECT**. Use ▲▼ to select the output mode. The factory default is "No Output". It is recommended to set the Output Mode to MAP Svc Chans Only. Refer to ***Factory Default Settings*** (on page 290) for Different Output Modes, for information on the default settings in order to choose the desired Output Mode. Press **SELECT**. Press ► to select "YES" if requested to "RESYNC ALL?". Press **SELECT**. Press ► to move to Descrambling Mode Menu. Press SELECT. Use ▲▼ to select the scrambling mode. Press **SELECT**.
6. Press **APPLY**. Press **SELECT**.
7. Press **MENU** 5 times to return to the startup menu.

Setting up the HD-SDI Outputs (SDI Model, with SD/HD-SDI and AES outputs)

The following displays the rear panel of the D9854 SDI Model, with SD/HD-SDI and AES outputs:



1 Press **MENU**.

2 Press ► to move to the Setup menu. Press **SELECT**.

3 Press ► three times to move to the Services menu. Press **SELECT**.

4 Press **SELECT** to enter the Video menu.

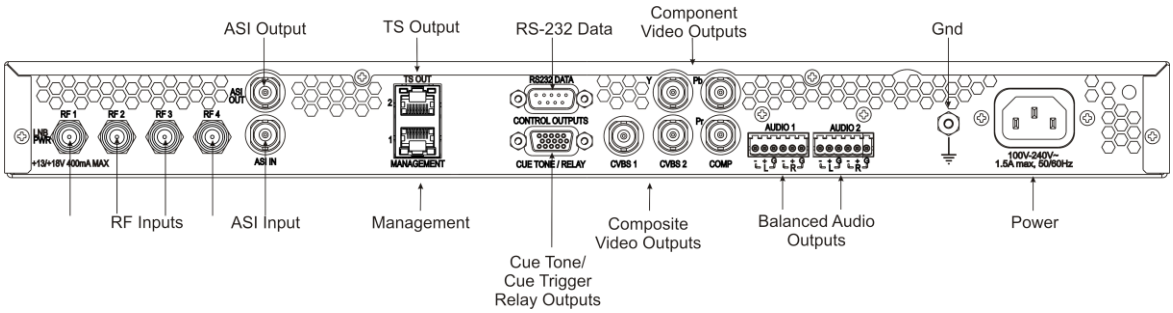
5 Press **SELECT** to enter the PV Format menu, then use ▲▼ to navigate and configure the output. Press **SELECT** to save the changes.

6 Press down arrow to move to the SD Format menu. Press **SELECT** to enter the menu and use ▲▼ to navigate and configure the output. Press **SELECT** to save the changes.

7 Press **MENU** two times. Press ► to move to the Outputs Menu. Press **SELECT**. Press ► two times to enter the M1/M2 Menu. Press **SELECT**. Press **SELECT** and use ▲▼ to enter ASI or SDI output on port 1. Press **SELECT** to save changes. Press ► to move to M2. Press **SELECT** and use ▲▼ to enter ASI or SDI output on port 2. Press **MENU** repeatedly to return to the startup screen.

Setting up the MOIP Outputs (Base Model)

The following displays the rear panel of the D9854 Base Model:



1 Press **MENU** to move to the Main Menu.

2 Press ► to move to the Setup menu. Press **SELECT**.

3 Press ▼ to move to the Outputs menu. Press **SELECT**.

4 Press ► to move to the TS Out menu. Press **SELECT**.

5 Press ► to move to the MOIP menu. Press **SELECT**. Press ►. Press **SELECT** for Rate Control. Use ▲▼ to select "USER". Selecting "Auto" for Rate Control results in the device setting the output rate to be the same as the input rate. Press **SELECT**. Press ► to move to the User Rate menu. Press **SELECT** and use the keypad to enter the desired bit rate. Press **SELECT** to save changes.

6 Press ▼ to move to the Output Mode. Press **SELECT**. Use ▲▼ to choose the output mode for your application. Press Select. Press ► to move to Descrambling Mode menu. Press **SELECT**. Use ▲▼ to select the scrambling mode. Press **SELECT**.

7 Press ▼. Press ► to move to Insert Null Packet. Press **SELECT**. Use ▲▼ to change the selection to "No". Press **SELECT**.

8 Press ▼ two times. Press **SELECT**. Use ▲▼ to change the selection to UDP or RTP. Press **SELECT**.

9 Press ▼. Press **SELECT**. Enter the Destination Address using the keypad. Press **SELECT**. Press ► to move to the UDP Port. Press **SELECT** and enter the Port number using the keypad. Press **SELECT** to save the change. Press ► to move to the source port. Press **SELECT** and enter the Port number using the keypad. Press **SELECT** to save the change. The default is zero, which allows the system to assign a port.

10 Press ▼. Press ► two times to move to PCR@IP Start menu. Press **SELECT**. Press ▼ to set value to "No". Press **SELECT** to save the value.

11 Press ▼ two times. Press ► to move to PCR Addition. Press ▼ to select "No".

12 Press **MENU** to exit the menu level and save the changes.

Setting the DPM Mode

A program can be set to one of three Digital Program Mapping (DPM) modes, either Drop, Pass or Map respectively. For more information, see ***TS Out - DPM*** (on page 101).

LCD Setting	Description
Drop	Removes the service and its associated PMT reference from the transport output.
Pass	Permits the source content and PMT reference to appear in the transport output with the same references unless the source material is mapped on another PE.
Map	Provides the flexibility to define all the outgoing PID numbers for a PE, including those not currently on transmission.

1. Press **MENU** to display the Main Menu.
2. Press ► to move to the Setup menu. Press **SELECT**.
3. Press ► five times to move to the Outputs menu. Press **SELECT**.
4. Press ► to move to the TS Out menu. Press **SELECT**.
5. Press ► twice to move to the DPM menu. Press **SELECT**.
6. Press **SELECT** to access the Global menu.
7. Press **SELECT** to choose ASI for Resync All. Press ► and then press **SELECT** to continue.
8. Press **MENU**. Press ► to move to the ASI menu. Press **SELECT**. Verify the PE1 ″InCh″ and ″OutCh″ programs.
9. Press ► three times to choose Act. Press **SELECT**. Use ▲▼ to select the DPM action for the PID associated with the PE. Press **SELECT**. Press **APPLY**. Press **SELECT** to save the changes.
10. Press **MENU** six times to return to the start-up screen.

2

Introduction

Overview

This chapter is a general introduction to the D9854 Advanced Program Receiver. It describes the most common applications and interfaces of the receiver.

In This Chapter

- D9854 Advanced Program Receiver 14
- DVB-ASI Transport Stream Outputs 17

D9854 Advanced Program Receiver

The D9854 Advanced Program Receiver is designed for satellite content distribution applications requiring DVB-S and DVB-S2 reception capabilities with advanced digital outputs for digital tier program distribution. A built-in decoder will be capable of decoding a MPEG-2 or MPEG-4 High Definition (HD) program for analog monitoring or high-quality HD-SDI output version will be available for re-encode applications.

The ASI transport output or the optional MPEGoIP output will provide a number of output modes including the capability of carrying a decrypted program for digital tier distribution. This helps ensure that compressed video programs are efficiently distributed to households equipped with digital set-top boxes. Digital Program Insertion (DPI) information will also be available along with the video and audio PIDs (Packet Identifiers) for external ad insertion in compressed digital format.

Key Features

The D9854 receiver provides the following key features:

- Four L-band inputs
- DVB-S QPSK demodulation
- DVB-S2 QPSK/8PSK demodulation
- PowerVu® conditional access with DES or DVB descrambling
- Supports Basic Interoperable Scrambling System (BISS) conditional access
- DVB-CI support for CAM-based conditional access
- 4:2:0 HD MPEG-4 AVC and MPEG-2 1080i and 720p decoding
- 4:2:0 SD MPEG-4 AVC and MPEG-2 decoding
- Aspect ratio conversion (4:3, 16:9, 14:9) with Active Format Descriptor (AFD) control for SD programs
- AFD support for down-conversion of HD programs with aspect ratio conversion
- Closed Captioning support for EIA-608 and EIA-708
- MPEG and Dolby® Digital audio decoding
- DVB or Imitext subtitling
- Four audio outputs providing either two stereo pairs or four mono channels of balanced, audio, each with the ability to use part of their output for applications such as SAP, cue tones, etc.
- Utility data up to 38.4 kbps via RS-232

- Uplink addressable decoder output control (VBI, audio routing, DPI, and ASI output)
- Fingerprint trigger
- Field upgradeable software and security
- SNMP for setup, control, and monitoring
- Front panel LCD for control and monitoring each with the ability to use part of their output for applications such as SAP, cue tones, etc.
- DVB-VBI and SCTE-127 support
- DTMF cue tone and cue trigger outputs for ad-insertion
- Digital Program Mapping providing uplink control for service replacements in blackout areas
- Field upgradeable software and security
- Front panel LCD and keypad for monitoring and control
- Web browser interface for easy setup, control, and monitoring. The supported web browsers are: Internet Explorer 7.0, Internet Explorer 8.0, Firefox 3.5, and Firefox 3.6.
- DVB-VBI and SCTE-127 support
- CAM Interface software
- DTMF cue tone and cue trigger outputs for ad insertion
- Digital Program Mapping providing uplink control for service replacements in blackout areas
- Multiprotocol Encapsulation (MPE) output
- HD to SD down conversion in uncompressed domain
- Live Event Control Support

Optional Features

The following features are available options:

- MPEGoIP output only available on the Digital Transport Model
- User-switchable redundant ASI outputs or SDI or HD-SDI outputs
- SD or HD-SDI video output with embedded audio
- AES-3id digital audio output

SFN Model Receivers

The Single Frequency Network (SFN) receivers do not include some of the key features normally equipped on D9854 receivers, such as Digital Program Mapping (DPM), MPEGoIP output, and transport stream null packet stuffing. These features are disabled on this receiver model. SFN model receivers can be identified by the part number “401943801060305” on the label on the top cover of the unit.

Software Update

All software in the D9854 receiver is stored in non-volatile memory that can be electrically programmed. New software releases for the D9854 receiver can be downloaded via the Ethernet 10/100/1000 BaseT Management interface.

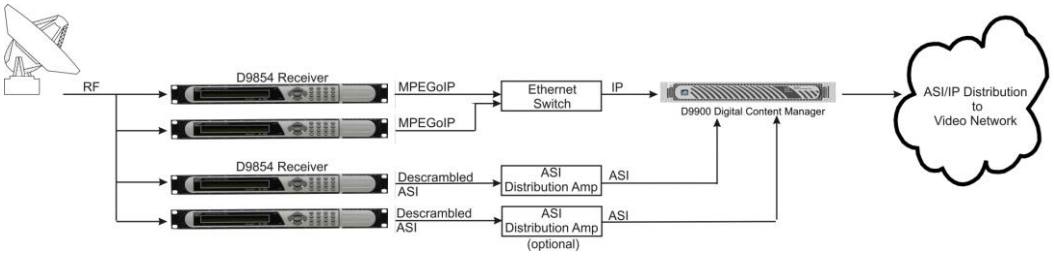
DVB-ASI Transport Stream Outputs

The D9854 receiver has one DVB-ASI output. This output can be used as an input for a DVB-T transmitter or other types of DVB-ASI reception equipment.

MPEGoIP Output

The optional MPEGoIP output provides a number of output modes including the capability of carrying a decrypted program for digital tier distribution. This helps ensure that compressed video programs are efficiently distributed to households equipped with digital set-top boxes. Digital Program Insertion (DPI) information will also be available along with the video and audio PIDs (Packet Identifiers) for external ad-insertion in compressed digital format.

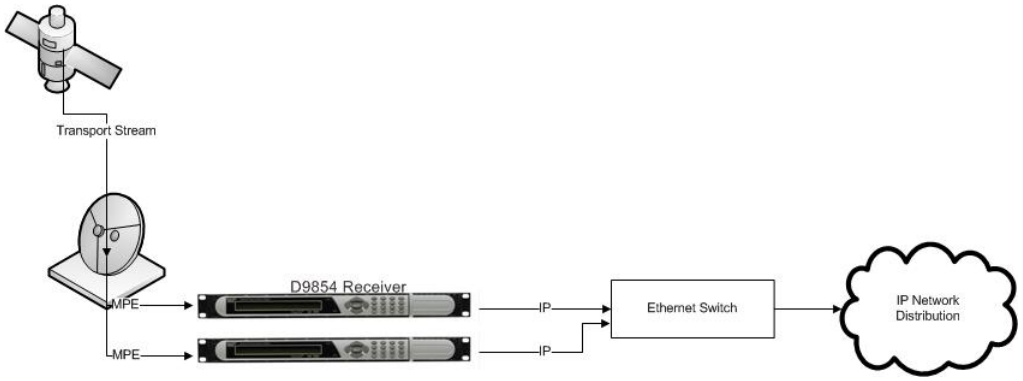
The diagram below shows an example of the D9854 receiver used in an MPEGoIP application.



MPE Output

The Multiprotocol Encapsulation (MPE) output provides a means to carry packet oriented IP protocols on top of a transport stream. The MPE output receives IP packets from the transport stream and the IP data can be sent through an Ethernet switch to an IP router or directly to a receiving device.

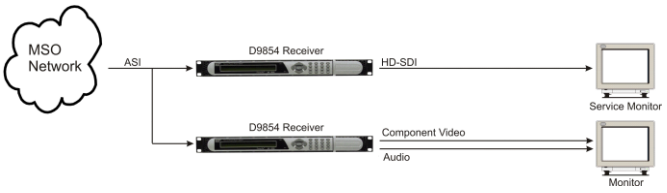
The diagram below shows an example of the D9854 receiver used in an MPE application.



HD-SDI Outputs

The D9854 Advanced Program Receiver is designed for satellite content distribution applications requiring DVB-S and DVB-S2 reception capabilities with advanced digital outputs for digital tier program distribution. A built-in decoder is capable of decoding an MPEG-2 or MPEG-4 High Definition (HD) program for analog monitoring. A high-quality HD-SDI output version is available for re-encoding applications.

The diagram below shows an example of the D9854 receiver used in HD-SDI monitoring applications.



3

Installation

Introduction

This chapter contains the information for technicians installing the Cisco D9854 Advanced Program Receiver.

Qualified Personnel

Only appropriately qualified and trained service personnel should attempt to install, operate, or maintain the D9854 receiver.

WARNING:

Allow only authorized and qualified service personnel to install, operate, maintain, and service this product. Otherwise, personal injury or equipment damage may occur.

In This Chapter

- Rack Installation 20
- Installing the D9854 Receiver 22
- D9854 Receiver Rear Connector Panel 24
- Connecting the Input/Output Signals 26
- Setting Admin User Privileges via a Telnet Connection 32
- Common Interface Modules 35

Rack Installation

Power Connection

To operate the receiver, you must connect it to an AC power source. For information about connecting the chassis to AC power, see ***Appendix B - Technical Specifications*** (on page 271).

As Cisco units are designed for continuous operation, some products do not have a power switch. In this case the mains cord and/or DC power supply cable serve(s) as the mains disconnect device.

WARNING:

Make sure that at least one end of the power cable(s) remains easily accessible for unplugging, if you need to switch off the unit. For example: Ensure that the socket outlet is installed near the product.

WARNING:

To avoid electrical shock, connect the three-prong plug on this product to an earth-grounded three-pin socket outlet only.

Mechanical Loading

Make sure that the rack is placed on a stable surface. If the rack has stabilizing devices, install these stabilizing devices before mounting any equipment in the rack.

WARNING:

Avoid personal injury and damage to this equipment. Mounting this equipment in the rack should be such that a hazardous condition is not caused due to uneven mechanical loading.

Elevated Operating Ambient Temperature

Only install this equipment in a humidity- and temperature-controlled environment that meets the requirements given in this equipment's technical specifications.

CAUTION:

If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, install this equipment in an environment compatible with the manufacturer's maximum rated ambient temperature.

Equipotential Bonding

If this equipment is equipped with an external chassis terminal marked with the IEC 60417-5020 chassis icon ( ), or 5017 (), the installer should refer to CENELEC standard EN 50083-1 or IEC standard IEC 60728-11 for correct equipotential bonding connection instructions.

Installing the D9854 Receiver

Rack Mounted

The D9854 receiver is a 1U unit with connector access at the rear panel. The receiver is intended for mounting in a standard 19" rack with minimum 1U spacing between units to allow adequate ventilation/air flow.

The D9854 receiver is vented from front to back. Multiple units can be stacked in a rack, provided that adequate cooling is available.

Cooling

The D9854 receiver is cooled by the use of internal fans. The air intake is from the front and the air outlet is on the rear.

Note: Adequate cooling must be provided equaling 107 W (maximum) at 25°C per unit to avoid overheating.

CAUTION:

The inlet air temperature must not exceed 50°C/122°F at any time.

Grounding

You must ensure that the unit is properly connected to ground in order to meet safety and EMC requirements. Before any other connection is made, the unit must be connected to a protected ground terminal as described below:

- Via the three wire power cord of the AC power supply. This connection is mandatory.
- In addition, via the protective ground terminal on the rear panel of the unit. This connection provides additional protection of the equipment.

Mounting the D9854 Receiver to a Rack

1. Mount L-brackets in the rack to support each D9854 receiver to be installed.
2. Place the receiver in its position in the rack.
3. Mount the receiver securely to the rack by securing the mounting flanges to the rack using the four screws provided.
4. Make sure the air outlet holes on the back of the receiver are not obstructed to allow air flow from the front to the back of the chassis.

Connecting AC Power to the D9854 Receiver

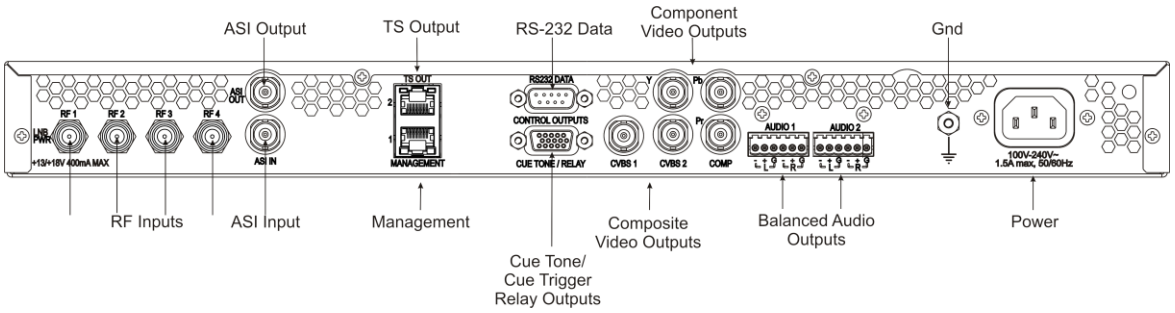
1. Connect the power cord (supplied with the D9854 receiver) between the rear panel power receptacle and a 100 to 120/200 to 240 V AC power outlet.
2. Make sure that the power cable is connected to protective ground. See ***Grounding*** (on page 22) for more information.

The D9854 receiver is equipped with one power supply located in the rear of the chassis. Note the location of the power supply in the event of alarms/warnings resulting in replacement of a power supply. Alarm messages appear in the Message Log.

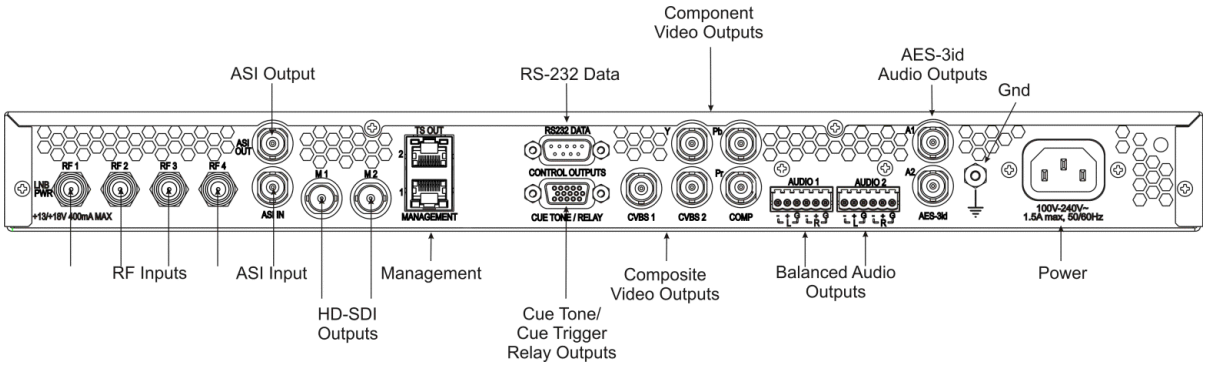
D9854 Receiver Rear Connector Panel

The following diagrams show the rear connector panel of the two D9854 receiver models available.

The following displays the base model:



The following displays the SDI model, with SD/HD-SDI and AES outputs:



The following table describes the function and type of the various connectors.

Connector	Description	Type
RF Inputs	Each input accepts an LNB signal input. RF1 provides LNB power for use when no external LNB power source is available. RF2 to RF4 require an external LNB power source.	F
ASI Input	Asynchronous Serial Interface Input.	BNC
ASI Output	One Asynchronous Serial Interface Output.	BNC
TS Output	This is for the MPEGoIP and MPE outputs. The MPEGoIP output of the transport stream is encapsulated in the IP packets to a groomer for distribution. The MPE output receives IP packets from the transport stream.	RJ-45

Connector	Description	Type
Management	For code downloading/application upgrading for the D9854 receiver.	RJ-45
HD-SDI Outputs	M1 and M2 provide HD serial digital video with embedded audio output for HD applications according to SMPTE-292M.	BNC
RS-232 Data	RS-232 data output: 7 bits, even parity, 1 stop bit, up to 38.4 kb/s. These outputs are user-configurable via the Setup menu on the front panel.	9-pin sub-D female
Cue Tone/Cue Trigger Relay Outputs	Program relay provides programmed responses for alarms, cue trigger states for ad-insertion equipment, or a cue tone output for connection to ad-insertion equipment.	15-pin sub-D female
Composite Video Outputs	CVBS 1 and CVBS 2 provide two identical SD composite video outputs for monitoring applications.	BNC
Component Video Outputs	SD to HD upconverted component video output for HD monitoring applications.	BNC
AES-3id Audio Outputs	AES-3id outputs. One output for each stereo channel.	BNC
Balanced Audio Outputs	Audio 1 and Audio 2 provide two stereo pairs or four mono channels.	Terminal Blocks
Ground	Screw	Grounding point for the receiver
Power	AC power	IEC 60320 Sheet 14

Connecting the Input/Output Signals

Connecting the RF Inputs

Connect up to four LNB RF cables to the RF connectors labeled RF1 through RF4 on the rear of the unit.

Use 75-ohm (braid/foil or braid/braid), low insertion loss coaxial cable.

Each input accepts an LNB signal input. RF2 to RF4 require an external LNB power source.

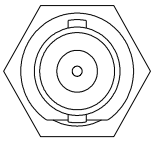
Connecting the ASI Input

If desired, connect to the ASI IN port to an asynchronous serial interface for uplink monitoring.

Connecting the Video Outputs

The video output connectors are of the BNC type.

The following table shows the video connector:

Connector	Interface type	Connector type
	SNPTE-292M	BNC female

Connecting the Component Video Output

Connect a video monitor to the connectors labeled Pr, Pb, and Y.

Connecting the Composite Video Output

Connect a video monitor to the CVSB 1 and CVSB 2 connectors. The two outputs are identical. Use a 75-ohm double-braided coax cable.

Connecting the HD-SDI Outputs

Connect HD rebroadcast equipment to the connectors labeled M1 and M2, and/or if required, connect them to a video monitor.

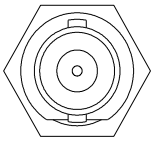
There are two connectors to provide active loop-through possibility.

Connecting the Audio Outputs

Connectors for the Digital Audio Output

The configuration of the D9854 receiver outputs two stereo channels. The D9854 receiver also supports encoding of audio embedded in the HD-SDI video signal.

The following drawing shows the audio connector.

Connector	Interface type	Connector type
	AES-292M	BNC female

Note: The digital audio output is always 75-ohm single-ended.

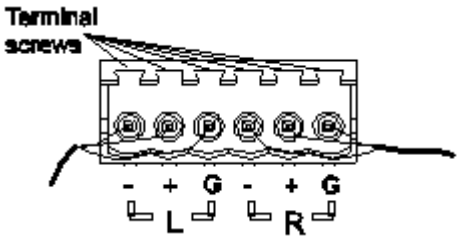
Connecting the Digital Audio Outputs

Connect digital audio output broadcast equipment to the AES-3id connectors. The two stereo channels are useful for Dolby Digital 5.1 passthrough applications. Use a high-quality, double-shielded RJ6 coaxial cable.

Hint: For digital audio connections, use a balanced cable designed for 110-ohm AES-EBU digital audio.

Connecting the Balanced Audio Output

1 Connect the AUDIO 1 and AUDIO 2 balanced audio outputs to monitoring equipment. Use a multi-conductor, pluggable cable from the receiver's AUDIO 1 and AUDIO 2 (Left and Right) terminals to your equipment, as shown in the following illustration.

Connector	Connector type
	Terminal Block

2 Feed the stripped ends of the positive, negative and ground wires into the appropriate terminals as labeled, and then screw the terminal screws (located on the top of the terminal block) finger tight to each wire.

Connecting the Ethernet Management Interface

The RJ-45 interface for 100/1000BASE-T Ethernet is currently intended for upgrading/downloading the software application. You must set up the IP address, the default gateway and the subnet mask to match the network connection. This is done through the front panel menu. For further information, see ***Setting up for Network Connection*** (on page 4).

Note: Proper cables are required for reliable Ethernet operation; to run up to a maximum segment length of 100 m and up to 100BASE-T, the cable has to comply with the EIA/TIA Category 5 (or higher) wire specifications, and for 1000BASE-T, Category 6 is required. For EMC protection, shielded cables must be used.

1. Connect an RJ-45 cable between the Ethernet connector on the D9854 receiver and the Ethernet port of your PC.
2. Set up the IP address on the D9854 receiver (via the front panel display). For information on setting up the IP address via the front panel, see ***Setting up for Network Connection*** (on page 4).

Connecting the IP TS Output

The RJ-45 interface IP TS OUT is 10/100/1000BASE-T Ethernet. It is intended for both MPEGoIP and MPE outputs. The MPEGoIP output of the transport stream is encapsulated in the IP packets to a groomer (for example, Cisco D9900 Digital Content Manager) for distribution. The MPE output receives IP packets from the transport stream.

Note: For reliable Ethernet operation; to run over a maximum segment length of 100 m and up to 100BASE-T, the cable has to comply with the EIA/TIA Category 5 (or higher) wire specifications, and for 1000BASE-T, Category 6 is required.

Connect a crossed RJ-45 cable between the Ethernet connector (DATA port only) on the D9854 receiver and the Ethernet port of the equipment after the D9854 receiver. The equipment after the D9854 receiver could be an IP router or a switch.

Connecting the ASI Output

Connect the output signal from the D9854 receiver ASI OUT connector.

Use a Belden “Brilliance” cable with foil/braid construction. The shield must provide 99% or better shielding effectiveness.

The equipment after the D9854 receiver could be a Cisco D9887 HDTV Receiver.

External Alarm System Connector

The D9854 receiver and Alarm relay functionality. See ***Connecting the Cue Tone/Cue Trigger Interface*** (see "***Cue Tone/Cue Trigger Interface***" on page 30) for more information on Cue Tone and Cue Trigger equipment connections. These outputs are user-configurable via the Setup Menu on the front panel.

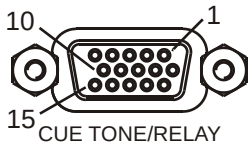
The Alarm output connector is a 15-pin sub-D female connector. The following diagram shows the connector and the pin allocation table for the Alarm output pins.

The connector pin states depend on the selected Relay Mode. The Relay Mode is set on the front panel via the Main: Setup: Outputs menu.

Changing the Relay Mode for Alarm Monitoring

The Alarm relay is a program relay that can be configured to provide programmed responses for alarms, warnings, cue trigger states for ad-insertion equipment, or a cue tone output for connection to ad-insertion equipment. As a default, the Alarm Relay is configured for Alarm mode.

1. On the front panel menu, go the Main: Setup: Outputs, and select **Cueing**.
2. Use the down arrow key to scroll through the menu to Relay Mode.
3. Change the state to **Alarm** and press the **Select** key to save the new setting. As a result, the rear panel connector pin states will change to that shown in the table below for Alarm mode.

Connector	Normally closed pin	Common pin	Normally open pin	Relay Mode
	11	10	15	Trigger
	15	10	11	Alarm (default)

Note: A Normally closed state implies the state when power is applied to the relay in a normal operating state, without a trigger or alarm condition present.

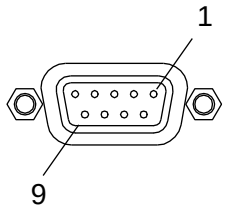
Connecting the RS-232 Data Interface

The DCE DB-9 female connector is intended for low-speed data: 7 bits, even parity, 1 stop bit, up to 38.4 kb/s (default). These outputs are user-configurable via the Setup Menu on the front panel.

The interconnect cable from the D9854 receiver to a PC should be straight through (for example, no handshaking), shielded and equipped with a DB-9 male connector at one end to mate with the rear panel RS-232 Data interface, and a female DB-9 connector to connect to the PC.

RS-232 Data Connector Pin Allocation

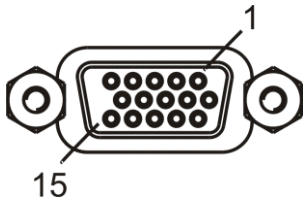
The table shows the RS-232 Data connector and the pin allocation:

Connector	Normally closed pin	Common pin
	1	Not connected
	2	TxD
	3	RxD
	4	Not connected
	5	Ground
	6	Not connected
	7	Not connected
	8	Not connected
	9	Not connected

Cue Tone/Cue Trigger Interface

The D9854 receiver is equipped with a connector labeled Cue Tone/Relay for alarm relay outputs for remote alarm signaling. This connector provides Cue Tone, Cue Trigger and Alarm relay functionality. These outputs are user-configurable via the Setup Menu on the front panel.

The connector is a 15-pin sub-D female connector. The following diagram shows the connector and the pin allocation table for Cue Tone, Cue Trigger and Alarm relay connections.

Connector	Pin	Pin allocation
	1	Cue Trig 1
	2	Cue Trig 2
	3	Cue Trig 3
	4	Cue Trig 4
	5	Cue Trig 5
	6	Cue Trig 6
	7	Cue Trig 7
	8	Cue Trig 8
	9	Not connected
	10	Alarm - Ground

Connector	Pin	Pin allocation
	11	Alarm - Normally open
	12	Chassis ground
	13	Cue Tone -
	14	Cue Tone +
	15	Alarm - Normally closed

Connecting the Cue Tone Interface

Connect the Cue Tone pins, 13 and 14 to a device to facilitate ad-insertion using DTMF Analog Cue Tones.

Connecting the Cue Trigger Interface

Connect the Cue Trigger pins (1 to 8) to up to 8 serial control devices or a device to control ad-insertion. These outputs are user-configurable on the front panel menu.

Configuring Open-collector Outputs

The D9854 supports decoding of SCTE-35 messages with DTMF descriptor. The D9854 outputs tones or sets the open collector contacts according to the content of the DTMF descriptor in the Cisco D9054 HDTV Encoder and the Cisco D9036 Modular Encoding Platform. For information on the open-collector output settings, see the *Cisco D9054 HDTV Encoder Installation and Operation Guide, part number 4043745* and *Cisco D9036 Modular Encoding Platform Installation and Configuration Guide, part number 4043885*.

Setting Admin User Privileges via a Telnet Connection

Administrator User Privileges

Up to 10 usernames/passwords can be defined for login use via a telnet session or Web GUI (for example, http) session on the D9854 receiver.

When a user tries to login via a telnet or http connection, the user is required to provide a username and a password. The user is granted access only if this username/password pair exists in the authentication table.

The factory preset "Admin" account has Admin privileges and is allowed to add new users, delete users, change usernames, and modify its own passwords. Users with non-Admin privileges (for example, User and Guest) are only allowed to modify their own passwords.

Starting a Telnet Session

To start a communication session with the receiver, use a utility such as Tera Term Pro or PuTTY.

Proceed as follows to log into a new connection using Tera Term:

1. In the New Connection window, enter the IP address in the **Host** field.
2. Select **Telnet** and enter 23 in the **TCP port #** field.
3. Click **OK**.
4. At the Login prompt, type the default username, `admin` and press **Enter**.
5. At the Password prompt, type the default password, `localadmin` and press **Enter**.
6. At the D9854 prompt, type `lr` and press **Enter**.

Adding a New User

1. At the D9854 prompt, type `pwd add_user` and press **Enter**.
2. At the NEW USERNAME prompt, type a new username and press **Enter**.
3. At the NEW PASSWORD prompt, type a new password and press **Enter**.

   Note: The new password must follow the rules configured in the Password Complexity parameter. For more information, see ***To Configure the User Login Passwords*** (see "***To Change the User Login Passwords***" on page 209) for the web GUI or ***Setup Menu: IP*** (on page 69) for the Front Panel.
4. At the CONFIRM NEW PASSWORD prompt, type the new password again and press **Enter**.

   Note: The New Password and Confirm New Password should be identical.

5 At the NEW USER PRIVILEGES prompt, enter the type of account you want to assign the user. The following table illustrates the different login types:

Account Type	Enter	Access
Guest	3	View settings only.
User	2	View and edit settings.
Admin	1	View, edit settings, and add/delete user accounts.

6 At the ADMINISTRATOR PASSWORD prompt, type the administrator's password and press **Enter**.

Deleting a User

1 At the D9854 prompt, type `pwd del_user` and press **Enter**.

2 At the USERNAME prompt, type the username you want to remove and press **Enter**.

3 At the ADMINISTRATOR PASSWORD prompt, type in the administrator's password and press **Enter**.

Changing a Username

Proceed as follows to modify a username:

1 At the D9854 prompt, type `pwd username_change` and press **Enter**.

2 At the CURRENT USERNAME prompt, type the username you want to edit and press **Enter**.

3 At the NEW USERNAME prompt, type the new username and press **Enter**.

Note: Ensure that the new username does not match any of the usernames already defined in the authentication table.

4 At the ADMINISTRATOR PASSWORD prompt, type the administrator's password and press **Enter**.

Changing a Password (allowed by all Users)

Passwords can be changed by all users.

1 At the D9854 prompt, type `pwd password_change` and press **Enter**.

2 At the CURRENT PASSWORD prompt, type the current login password you want to change and press **Enter**.

3 At the NEW PASSWORD prompt, type a new login password and press **Enter**.

4 At the CONFIRM NEW PASSWORD prompt, type the new login password again to confirm and press **Enter**.

Note: The new password and the confirm new password should be identical. Each user, including the admin user, can modify only his own password.

Printing the List of Users

At the D9854 prompt, type `pwd list_users` and press **Enter**.

Note: Only usernames will be printed. Passwords will not be visible.

Resetting the Login Credentials

At any time, the user authentication table can be reset from the front panel. This option is under the Setup: IP: IP menu. Scroll down to Reset Credentials and press **SELECT**. Press ► and then press **SELECT** to confirm the operation. A new login username and randomly generated password will be displayed on the front panel display for approximately 30 seconds. The new account will have Admin privileges. It is recommended that this account be replaced by a login username and password chosen by the administrator. To change the username and password, you must be an Admin user. Refer to ***To Configure the User Login Passwords*** (see "***To Change the User Login Passwords***" on page 209).

Note: After this recovery procedure, all existing user accounts will be lost.

Common Interface Modules

Only CAMs purchased from Cisco are currently supported. The following lists the supported CAMs:

Common Interface Modules	Part Number
Aston Professional CAM, for descrambling CONAX (maximum 12 services)	4016669
Aston Consumer CAM for descrambling CONAX (maximum 2 services)	4016670
CAM for descrambling CryptoWorks V9523361 Aston Professional CAM for descrambling Irdeto (maximum 12 services)	4016671
Aston Consumer CAM for descrambling Irdeto (maximum 2 services)	4016672
Aston Professional CAM for descrambling MediaGuard (maximum 12 services)	V9528197
Aston Consumer CAM for descrambling MediaGuard (Maximum 2 services)	V9528198
Aston Professional CAM for descrambling Viaccess (maximum 12 services)	V9528199
Aston Consumer CAM for descrambling Viaccess (maximum 2 services)	V9528240
CAM for descrambling Roscrypt (maximum 50 services)	NA
SMiT Professional Irdeto CAM (maximum 8 services)	4037372
SMiT Consumer Irdeto CAM	4037371

Note: Roscrypt CAMs are not available from Cisco, and must be purchased from a recognized vendor.

4

Front Panel Operation

Overview

This chapter describes how to set up the D9854 Advanced Program Receiver using the front panel keys and display. This information is primarily applicable for standalone operation.

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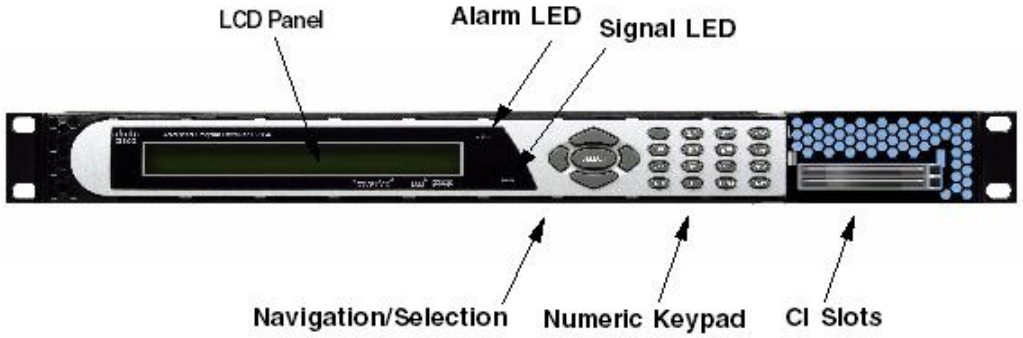
- Locking/Unlocking the Front Panel 42
- Startup Screen 43
- Main Menu 47
- Status Menu 48
- Setup Menu 57
- About Menu 118
- Versions Menu 120
- Diagnostics Menu 123

About the Front Panel

The D9854 receiver is operated using controls and indicators on the front panel. These include the numeric keypad, the Navigation/Selection keypad, the LCD, the Alarm and Signal indicators. These are shown in the following illustration.



LCD

The LCD provides information on the selections available at any menu level, current settings for parameters, and certain status and alarm indications. This is a 2x40, backlit LCD display. The top line may be status data or identifier information. It can also display optional functions available for tuning operations. The bottom line will show selections or parameter values available using the navigation/selection keypad. The items are selected by pressing the **SELECT** (center key) or the ▼ (down arrow) key on the navigation/selection keypad.

Keypad

The numeric keypad is used to enter alphanumeric values. The **MENU** key sets the software to the initial menu and returns to the previous menu. The **MENU** key can also be used to cancel a numeric entry at any point during the entry sequence, and the ◄ (left arrow) key allows backspacing through the entry.

CI Slots

The CI slots allow the use of CAM (Conditional Access Module) Smart Card to decrypt purchased programming. For setup information, see ***Setup Menu: Common Interface (CI)*** (on page 88). For a list of supported CAMs, refer to ***Common Interface Modules*** (on page 35).

Front Panel LEDs

The functions of the LEDs are described in the table below.

LED	Signal State/Color	Explanation
ALARM	Red	Solid for five seconds indicates a Warning.
	Red	Flashing indicates an Alarm.
SIGNAL	Green	Solid indicates all of the following conditions: ■ all RF inputs are enabled, all inputs are locked to a signal, and are not muted. ■ all routed ASI outputs are operating without an error.
	Green	Flashing indicates one of the following conditions: ■ difficulty with an input, route or output. ■ one or more RF inputs, or the ASI input are not synchronized. ■ one or more ASI outputs are routed, but muted by a fault condition. ■ no RF signal is present or detected, or it is muted. ■ receiver is not authorized to receive the program.
	Off	Off indicates all of the following conditions: ■ no RF input signal is available, enabled or detected, or the input is muted. ■ no ASI input is present ■ no valid inputs are available.

Navigation/Selection Keypad

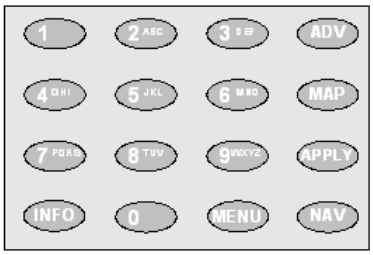
Throughout this manual, there are references to parts of a keypad on the front of the receiver.

The navigation keys (**LEFT**, **RIGHT**, **UP**, and **DOWN**) and the **SELECT** key are the primary controllers. Each navigation key performs various functions, depending on the current state of the menu system (i.e., sometimes the left navigation key backspaces over an entry and sometimes moves the cursor to a different menu item). Once the cursor is over the desired function, pressing the **SELECT** (center key) key selects the current item. Pressing the **SELECT** key stores any entered values.

The following is the Navigation/Selection keypad, which changes its function, depending on the current state of the menu.

The following table shows which parts of this integral interface are being referenced by which term.

Button	Function	
LEFT Arrow key	When moving through menus, highlights the menu item to the left. When entering data, moves the cursor to the left. In some menus, backspaces over the data entry.	
RIGHT Arrow key	When moving through menus, highlights the menu item to the right. When entering data, moves the cursor to the right.	
UP Arrow key	Highlights the menu item above.	
DOWN Arrow key	Highlights the menu item below.	
SELECT key	Runs the highlighted command or opens the highlighted menu.	

Button	Function	
INFO key	Press the key on the lower left of the numeric keypad for context-sensitive help messages, when available. When entering characters in numeric or alphanumeric fields, this key can be used to toggle between upper and lower case.	
MENU key	Press the key on the lower right of the numeric keypad. Starts the on-screen display. Also functions as the Escape key so you can back out of menus and data entry fields.	
Alphanumeric Entry	Pressing the numeric keys 2-9 once will enter the respective digit into a data entry field. Pressing these buttons again will enter the first of the letters displayed beside the number. Repeatedly pressing the button will toggle through all of the key's possible choices. When entering text, the 1 button can be used to insert spaces (press twice). To delete a character, press 0 twice.	
ADV	Toggles between Program Entry and Channel number.	
MAP	Edit, insert, and delete Digital Program Mapping (DPM) Modes on Program Entries or on PIDS within Program Entries.	
NAV	For future use.	

Locking/Unlocking the Front Panel

Depending on the customer's default settings, the receiver is shipped with a locked or unlocked front panel. You can lock or unlock the front panel using the front panel keypad.

1. From the Startup screen, press **SELECT** and then **INFO**. This will unlock the front panel keypad and allow you to make changes to all the operating parameters; however, if the keypad remains untouched for the duration of the set timeout period (default is 60 seconds), the keypad will change back to the Lock state unless you change the keypad state on the Admin Menu. Likewise you can toggle the keypad lock state back using SELECT and INFO at any time provided the KB Lock state on the Admin Menu is Enabled. For more information on front panel keypad buttons, see Keypad Convention.

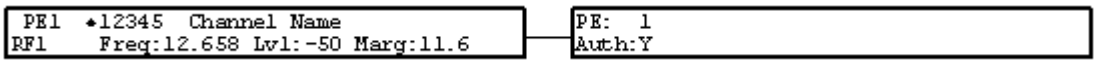
   Note: If the lock level is 3 or 4, you must enter a password to unlock the front panel. For more information on lock level password, see ***Setup Menu: Admin*** (on page 58).
2. To disable Lock completely, navigate to **Setup**, **Admin**, **KB Lock** in the LCD display and press the **SELECT** key.
3. Change the **KB Lock** state from **Enabled** to **Disabled**.
4. The front panel will now be unlocked allowing you to change any of the operating parameters.

   To lock the front panel, perform the same procedure, except use ▲▼ to change the state. In this case you will not be prompted to confirm the operation.

Startup Screen

Main Structure

On power-up and initialization, the startup screen is displayed similar to that shown below. The screen also indicates the signal status.



Startup Screen Channel Authorization Status Screen

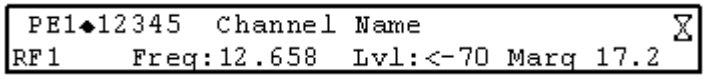
Channel Authorization Status

From the startup screen, press the right or left arrow keys on the front panel keypad to move to the PE entry authorization status screen. This screen indicates whether the selected channel is authorized.

Auth Status	Description
Y	Indicates the channel is authorized.
N	Indicates the channel is not authorized.

LCD Panel

The LCD panel displays basic signal and program information in the LCD display, as described in the following illustration:

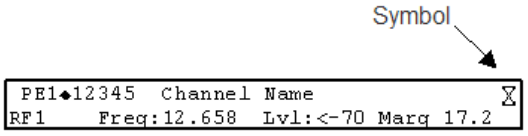


LCD Setting	Description
PE	Program Entry (PE). The receiver supports up to 16 program entries. **Note:** Only PE1 supports PowerVu descrambling. Do not assign PowerVu channels to PE2 to PE16. If any PowerVu channels are assigned to PE2 to PE16, all Service PIDs associated with these channels will be dropped from the transport output. All 16 PEs can use the Conditional Access Modules (CAMs).
12345	Channel for program monitoring.

LCD Setting	Description
Channel name	Name of the monitored program.
RF	Active RF input port. **Note:** ASI will be shown if the ASI input port is active.
Freq:	Downlink frequency of the tuned signal in GHz.
Lvl:	Signal level in dBm.
Marg:	Carrier-to-noise (C/N) margin in dB.
DEGD	The Degraded indicator only appears if there is degraded tuning information in use. This occurs if the SI tables are not consistent on the incoming stream. The receiver will attempt to identify the service list based on the information available. Check the SI acquisition and stream information to ensure that the channels, network, and tuning information are operating as expected.

LCD Symbol

Various symbols will periodically appear in the top right-hand corner of the LCD panel, indicating which user actions are currently acceptable. The following displays the location of the symbol:



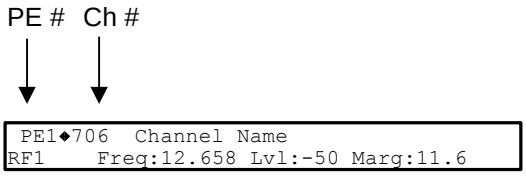
The following table describes the various symbols:

LCD Symbol	Description
⧖	The Hourglass indicates that parameters are being saved in the background. You can continue to perform any operation desired. **Note:** If a power-cycle/interruption occurs while the hourglass is displayed, some parameters may not be saved. Refrain from powering off the unit while the hourglass is displayed.
🛈	The Info symbol indicates that the INFO key is active. In most cases, this will display contextual information on the LCD screen.
🖱	The Select symbol indicates that the SELECT key is active.

LCD Symbol	Description
◄►	The Left/Right symbol indicates that the RIGHT/LEFT arrow key is active; e.g., pressing the RIGHT/LEFT arrow key will have an affect, such as moving the cursor to the right/left.
▲▼	The up/down symbol indicates that the UP/DOWN arrow key is active.
	The Download In Progress (DL) symbol indicates that the receiver is currently downloading a software update and storing it into memory in the background. **Note:** Service interruption occurs during a reboot, which is always required when the receiver's software is updated.
	The Download Trigger (DT) symbol indicates new software is ready for download, but a download trigger by the receiver is required before it will be downloaded. **Note:** Service interruption occurs during a reboot, which is always required when the receiver's software is updated.
	The Download symbol indicates that a software download for a version of software already in memory has been detected.
*	The Session Open symbol indicates that you are changing a group of related items.

Assigning Program to the Program Entry

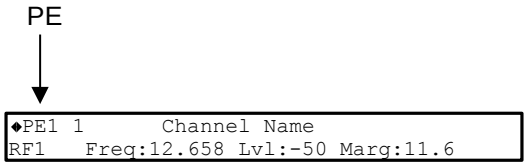
1 Press **MENU** until you display the startup screen.



The PE (Program Entry) channel is initially displayed.

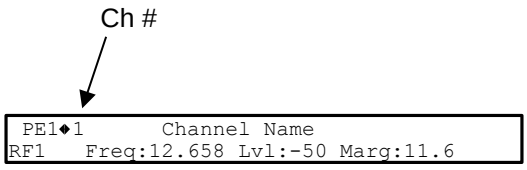
Note: PE1 is the default.

2 Press the **ADV** key to select PE1.



3 Press ▲▼ to scroll through the available program entries.

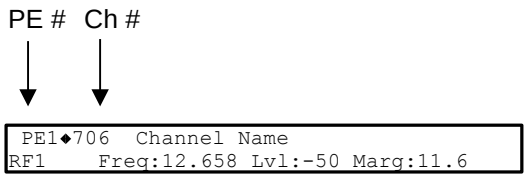
4 Press **ADV** again to select the channel number.



5 Directly enter the channel number using the 0 to 9 keys and press **SELECT** to apply the channel number, or press ▲▼ to scroll through the available channels.

Deleting a Program from the Program Entry

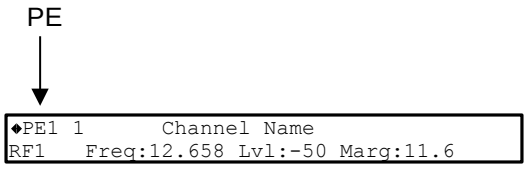
1 Press **MENU** until the startup screen appears.



The PE channel is initial displayed.

Note: PE1 is the default.

2 Press the **ADV** key to select PE1.



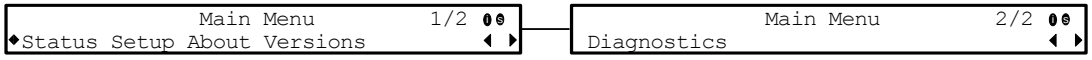
3 Press the ▲▼ to scroll through the available program entries.

4 Press **ADV** again to select the channel number.

5 Enter the channel number 0 with the numeric keys and press **SELECT** to apply and delete the program.

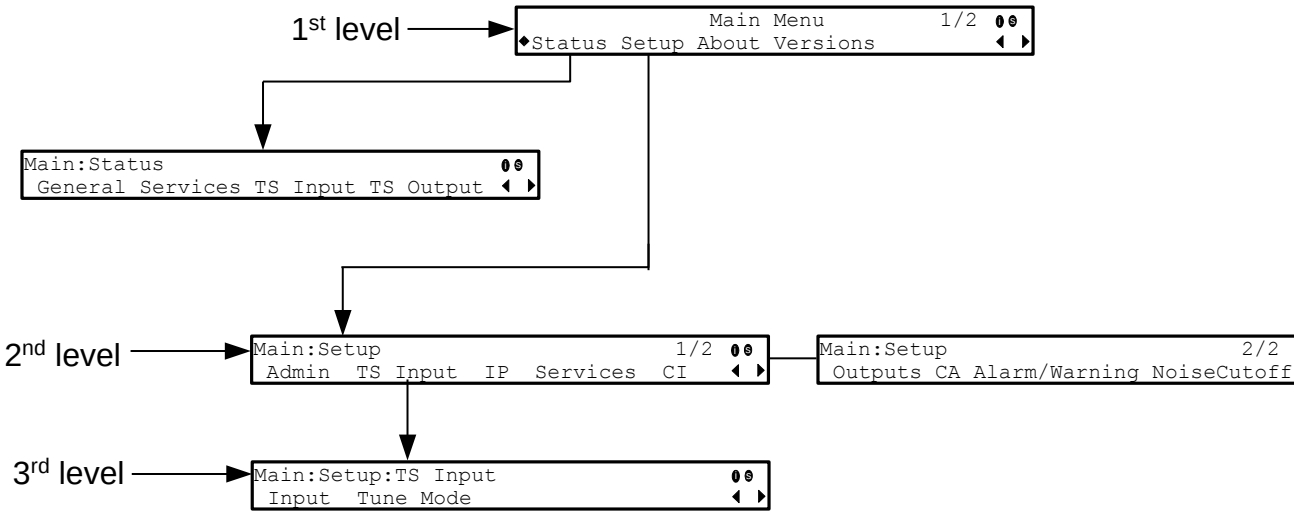
Main Menu

Operation of the D9854 receiver begins at the Main menu. From the startup screen, press the **MENU** key to view the Main menu.



Main Selection

Select the desired function by moving the cursor left or right by pressing the **LEFT** or **RIGHT** arrow key. Once a selection is made by pressing the **SELECT** key, the LCD presents the second menu level for the selected function. Succeeding levels for each function include all the hierarchical levels for the function in the front panel LCD. For example, the TS Input level is shown as Main: Setup: TS Input, with each succeeding level separated by a colon (:), as shown in the example below. The front panel menus are described on the following pages.



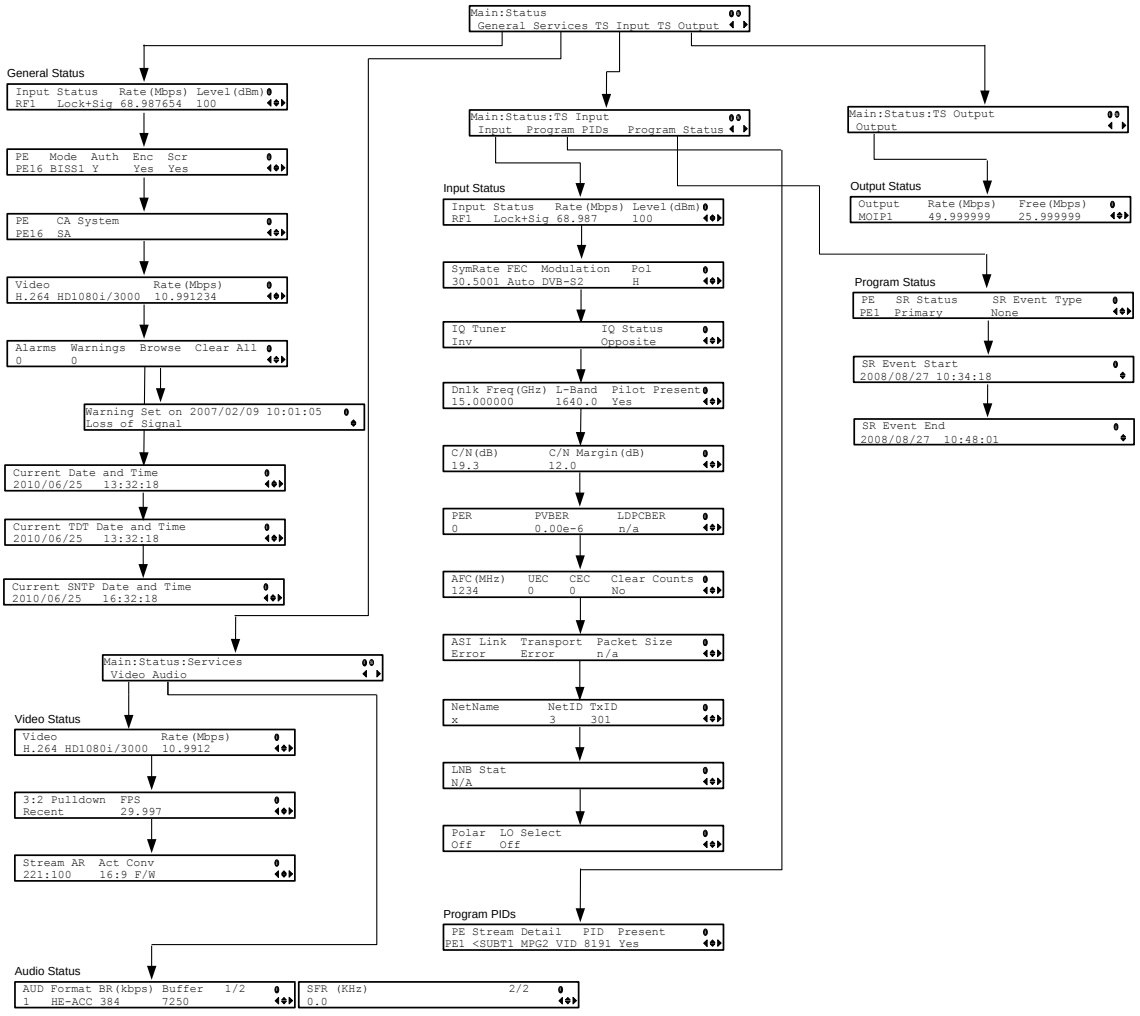
Status Menu

Structure

To view the Status menu from the Main menu, press the **SELECT** key. The Status menu indicates the status of the input and output signals, the video and audio services, and allows you to browse and/or configure the alarms and warnings.

The Status menu is split into four parts; General, Services, TS Input and TS Output. Each parameter is described in this section. For instructions on how to select and store settings, see ***About the Front Panel*** (on page 38).

The Status menu has the following structure:



Status Menu: General

Menu Item	Description	Parameters
Input	Indicates the currently selected input source.	RF1 to RF4, or ASI
Status	Indicates whether the input signal is locked.	Locked - Indicates the receiver is locked to a carrier with no valid content. Lock+Sig - Indicates the receiver is locked to a carrier with valid content. No Lock - Indicates the receiver is not locked to a carrier.
Rate (Mbps)	Indicates the bit rate of the input transport stream, in Mbps.	
Level (dBm)	Indicates the strength of the received signal level, in dBm.	
PE	Select the Program Entry to view.	PE1 to PE32
Mode	Indicates how the program is scrambled.	Unkn, DES, DVB, BISS1, BISS2, or BISS3
Auth	Indicates whether the receiver is authorized to receive the program.	Yes or No
Enc	Indicates whether the received program is encrypted.	Yes or No
Scr	Indicates whether the received program is scrambled.	Yes or No
CA System	Indicates the type of Conditional Access (CA) system used by the program.	SA, BISS, or FTA (Free To Air)
Video	Indicates the video encoding, format, and resolution of the received program.	MPEG1, MPEG2, or H264 format with a resolution of: SD480i/2997, SD480i/3000, SD576i/2500, HD720p/5000, HD720p/5994, HD720p/6000, HD1080i/2500, HD1080i/2997, or HD1080i/3000 Unknown or Unsupported
Rate (Mbps)	Indicates the bit rate of the received video stream, in Mbps.	
Alarms	Displays the number of active alarms.	
Warnings	Indicates the number of active warnings.	

Menu Item	Description	Parameters
Browse	Select to view the current active alarms and warnings, including additional details.	
Clear All	Select to clear all the active alarms and warnings. You will be prompted to verify whether you want to clear all the alarms and warnings.	Abort, Continue. Select Abort to cancel the operation or Continue to clear all the warnings and alarms.
Current Date and Time	Displays the current SNTP date and time, if available. Otherwise, the current TDT date and time is displayed. **Note:** This is displayed as local time.	
Current TDT Date and Time	Displays the current TDT (Time and Date Table) date and time received from the DVB stream. **Note:** This is displayed as local time.	
Current SNTP Date and Time	Displays the current SNTP (Simple Networking Time Protocol) date and time if IRD receives a valid reply from the NTP server. **Note:** This is displayed as local time.	

Status Menu: Services

Video

Menu Item	Description	Parameters
Video	Indicates the video encoding, format, and resolution of the received program.	MPEG1, MPEG2, or H264 format with a resolution of: SD480i/2997, SD480i/3000, SD576i/2500, HD720p/5000, HD720p/5994, HD720p/6000, HD1080i/2500, HD1080i/2997, or HD1080i/3000 Unknown, or Unsupported
Rate (Mbps)	Indicates the bit rate of the received video stream, in Mbps.	
3:2 Pulldown	Indicates whether the 3:2 pulldown is detected, was recently detected, or not detected in the input video stream.	Yes, No or Recent

Menu Item	Description	Parameters
FPS	Indicates the frame rate of the input video stream.	Typically 25.0, 29.97, 30.0, 50.0, 59.94, 60.0, unknown or unsupported
Stream AR	Indicates the aspect ratio of the incoming video stream.	4:3, 14:9 or 16:9
Act Conv	Displays the actual applied aspect ratio conversion.	None, 4:3 L/B, 4:3 P/B, 14:9, 14:9, 4:3 F/H or 16:9 F/W

Audio

Menu Item	Description	Parameters
AUD	Indicates the current audio decoder status.	AUD1 for audio channel Aud1. AUD2 for audio channel Aud2. AUD1 to AUD4 for two stereo audio channels.
Format	Indicates the format of the audio input stream.	None, Sine, Pink, Beep, MPEG1L1, MPEG1L2, MPEG2L1, MPEG2L2, AC3, LOAS AAC, ADTS AAC, LOAS HEAAC, ADTS HEAAC, or DDP
BR (Kbps)	Indicates the bit rate of the audio input stream, in kbps.	
Buffer	Indicates the buffer level of the input audio stream, in bytes.	
SFR (KHz)	Indicates the sample rate of the input audio stream, in kHz.	32.0, 44.1, or 48.0 kHz
DDP IND	Indicates the presence of Dolby Digital Plus frames within a Dolby Digital Plus audio stream.	OFF or ON
DUAL-MONO IND	Indicates the presence of dual mono audio outputs in the audio stream. If the dual mono indicator is set to ON, the left and right outputs will correspond to mono channel 1 and mono channel 2 respectively.	OFF or ON

Status Menu: TS Input

Input

Menu Item	Description	Parameters
Input	Indicates the active input port receiving the signal.	RF1, RF2, RF3, RF4, or ASI
Status	Indicates the current signal lock status for the input.	Locked - Indicates the receiver is locked to a carrier with no valid content. Lock+Sig - Indicates the receiver is locked to a carrier with valid content. No Lock - Indicates the receiver is not locked to a carrier.
Rate (Mbps)	Indicates the bit rate of the received input signal.	in Mbps
Level (dBm)	Indicates the signal level of the received signal.	in dBm
SymRate	Indicates the Symbol Rate of the received signal.	in Msymbols/second
FEC	Indicates the FEC (Forward Error Correction) rate of the received signal.	N/A, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 7/8, 8/9 or 9/10
Modulation	Indicates the modulation type for the received signal.	N/A, QPSK, 8PSK, DVB-S, DVB-S2 or 16QAM
Pol	Indicates the signal polarization setting. This setting is only applicable when LNB Power is set to H-NIT or V-NIT. The selected setting must match the polarization of the transmitted signal.	Horiz (Horizontal), Vert (Vertical) or Auto
IQ Tuner	Indicates the IQ (Input Signal Inversion) for the received signal.	Inv or NonInv
IQ Status	Indicates the input signal spectrum inversion setting (IQ), which allows the operator to track and select inverted and non-inverted digital signals.	Auto, Opposite, or Normal
Dnlk Freq (GHz)	Indicates the current downlink frequency.	in GHz
L-Band	Indicates the current L-Band frequency.	in MHz

Menu Item	Description	Parameters
Pilot Present	Indicates whether a Pilot is present for the received signal. The Pilot is set on the modulator for input signal synchronization purposes.	Yes, No, or N/A
C/N (dB)	Indicates the current Carrier-to-Noise ratio.	in dB
C/N Margin (dB)	Indicates the current Carrier-to-Noise Margin for the received signal. The Carrier-to-Noise margin is the actual distance that C/N is from the noise threshold.	Values can be displayed in the range of -32.0 to +30.0 dB.
PER	Indicates the current PER (Packet Error Rate) of the received signal (DVB-S2).	
PVBER	Indicates the PV (Post-Viterbi) BER for the received signal (DVB-S).	
LDPCBER	Indicates the LDPC (Low Density Parity Check) error rate for the received signal (DVB-S2).	
AFC (MHz)	Indicates the current Automatic Frequency Control count.	in MHz
UEC	Indicates the current Uncorrected Error Count for the received signal.	
CEC	Indicates the current Corrected Error Count for the received signal (DVB-S).	
Clear Counts	Select this option to clear the error counters.	
ASI Link	Indicates whether there is a transport stream link error.	Error, Ok, or N/A
Transport	Indicates the current transport synchronization status.	Error, Ok, or N/A
Packet Size	Indicates the packet size (in bytes) for the ASI input.	188, 204, or N/A
Net Name	Indicates the name assigned to the network.	Up to 12 alphanumeric characters.

Menu Item	Description	Parameters
NetID	Indicates the Network ID of the uplink signal the receiver is to receive when using the selected preset. The receiver's Network ID must match the Network ID associated with the transmitted signal that identifies the NIT to be used. **Note:** Each network must be assigned a unique ID (number).	1 to 65535
TxID	Indicates the Transport ID.	1 to 65535
LNB Stat	Indicates the current Low Noise Block (LNB) connection status.	No Load, Over Loaded, Over Temperature, Short Circuit, Disabled, Normal or N/A
Polar	Indicates the polarity of the LNB Power supply.	Off, 13V, or 18V
LO Select	Indicates whether a 22 kHz tone is available on input port RF1. This is applicable for dual-band applications.	On or Off

Program PIDs

Menu Item	Description	Parameters
PE	Select the Program Entry to view.	PE1 to PE32
Stream	Indicates the name assigned to the Program Entry.	Up to 4 alphanumeric characters
Detail	Indicates any detail associated with the program PID (e.g., MPG2 PID).	MPG1 VID, MPG2 VID, 422 VID, H264 VID, HD VID, MPG4 VID, MPG AUD, MPG2 AUD, DVB AC3, DVB DDP, AAC AUD, HEAAC, AUD, MPG4 AUD, DBE AUD, DTS AUD, DVB TXT, DVB VBI, DVB SUBT, DVB ASYN, DVB SYNS, DVB SYND, DVB MPE, DVB DCAR, DVB OCAR, SA VBI, ATSC AC3, ATSC DDP, SA UTLD, SCTE DPI, SA HSD, SA CDDL, SA WBD, SA SUBT, ECM, EMM, PCR, or UNKNOWN
PID	Indicates the program PID number.	1 to 8191
Present	Indicates whether the PID is present in the incoming stream.	Yes or No

Status Menu: TS Output

Output Status

Menu Item	Description	Parameters
Output	Indicates the output type.	ASI or MPEGoIP
Rate (Mbps)	Indicates the current output bit rate.	0 to 213 Mbps
Free (Mbps)	Indicates the available bandwidth, in Mbps (without stuffing).	

Program Status

Menu Item	Description	Parameters
PE	Select the Program Entry number to view.	PE1 to PE32
SR Status	This displays the status of an alternate authorized program/service from the same transport stream when the receiver is not authorized to view the primary program. This is an uplink initiated function that maps the alternate service to the original (primary) service PIDs, replacing the original service with the alternate service at the digital transport output. No local intervention is required by the receiver operator for provision of this service replacement feature.	Not Started - Indicates that an event has not started. Primary - Indicates that a service replacement event is active, but the primary program is being displayed. Alternate - Indicates that a service replacement event is active, and that the receiver has tuned to and is displaying the alternate program/event as it is not authorized to view the scheduled event.

Menu Item	Description	Parameters
SR Event Type	Indicates the type of service replacement event.	None - Indicates that no service replacement event is scheduled. Scheduled - Indicates that all receivers will tune to the alternate program at the scheduled time. This setting is only applicable to current PE1 (i.e., PowerVu) programs; not PE2 through PE32. CA - Indicates that only receivers unauthorized to view the scheduled program will tune to the alternate program according to the selected authorization tier bits. This setting is only applicable to current PE1 (i.e., PowerVu) programs; not PE2 through PE32. Cue Trigger - Indicates that only receivers authorized by the Cue Trigger mask will tune to the scheduled program/event. Cue triggers can only be initiated /controlled on PE1 (i.e., PowerVu).
SR Event Start	Displays the start time of the service replacement event when one is scheduled; otherwise, the default start time is displayed. The default start time is 2007/09/01 00:00:00.	
SR Event End	Displays the end time of the service replacement event when one is scheduled; otherwise, the default end time is displayed. The default end time is 2007/09/01 00:00:00.	

Setup Menu

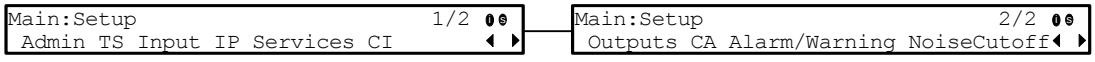
Structure

To view the Setup menu from the Main menu, press the **RIGHT** arrow key once and the **SELECT** key. The Setup menu is split into nine parts; Administration, TS Input, IP, Services, CI, Outputs, CA, Alarms/Warnings, and Noise Cutoff. For instructions on how to select and store settings, see ***About the Front Panel*** (on page 38).

The Setup menu allows you to set all the parameters associated with the following:

- Administration - lock level, password, factory reset, keypad lock, download mode and date and time
- TS Input - frequency parameters for acquiring and locking on to an RF signal, or receiving an ASI input
- IP - parameters for setting up the Ethernet ports
- Services - audio video, captions, and VBI
- CI - parameters to decrypt programming available from service provider programmers via CAM Smart Cards
- Outputs - alarm relays, cue tone/cue trigger setup, parameters for setting up the transport stream out, which includes DPM
- CA - conditional access
- Alarms/Warnings - enables alarms/warnings traps and relays
- Noise Cutoff - muting thresholds

The Setup menu has the following structure:

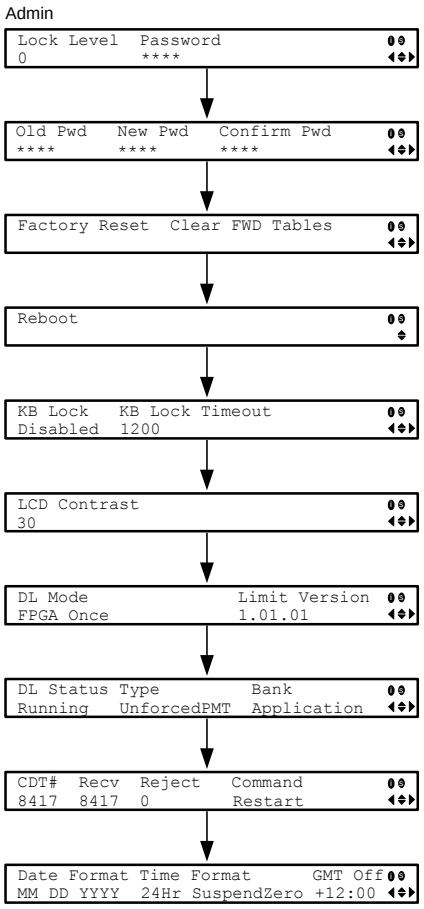


Setup Menu: Admin

To view the Admin menu from the Main menu, press the **SELECT** key.

For instructions on how to select and store settings, see ***About the Front Panel*** (on page 38).

The Admin menu has the following structure:



Menu Item	Description	Parameters
Lock Level	Sets the front panel interface lock level. For information on each of the lock levels, see ***D9854 Receiver Lock Levels*** (on page 302).	0, 1, 2, 3, or 4
Password	Enter the password to successfully set the current lock level. The default password for all lock levels is 1234.	

Menu Item	Description	Parameters
Old Pwd, New Pwd, Confirm Pwd	To change the password, enter the old password (Old Pwd). Next, enter the new password (New Pwd, four digits in the range from 0000 to 9999) and re-enter the new password for confirmation (Confirm Pwd). To change the password, the receiver must be in Lock Level 0. The default password is 1234.	
Factory Reset	Select this option to perform a reset of receiver settings back to the factory set (default) values. A warning message prompts you to confirm the operation.	Reboots Unit - you are prompted to verify the operation. Abort or Continue
Clear FWD tables	Select to clear settings that are only used in older applications. Reverting back to an older application will revet to the default values of the cleared settings. A warning message prompts you to confirm the operation.	Abort or Continue
Reboot	Allows you to reboot the receiver. You will be asked to confirm the operation.	Select Continue to reboot the receiver or Abort to cancel the operation.
KB Lock	Select whether to lock the front panel keypad after a time of disuse.	Enabled or Disabled
KB Lock Timeout	If KB Lock is enabled, you can sets the keypad lock timeout period, in seconds. The keypad will lock after the set period of disuse. Avoid setting the period to a short duration when the keypad is used often.	5 to 1800 seconds. The default is 60 seconds.
LCD Contrast	Adjusts the contrast of the LCD menu panel.	1 (lowest contrast) to 30 (highest contrast)

Menu Item	Description	Parameters
DL Mode	Set the unforced over-the-air download mode.	Always - Unforced download will be accepted and saved in memory. Once - An unforced download will be accepted, followed by a reboot of the receiver, and the DL Mode will change to Never. Never - Unforced downloads will not be accepted. **Note:** Forced downloads (initiated by the uplink) are always accepted and always result in a reboot of the receiver. *Service interruption will occur!*
Limit Version	Indicates the oldest version of the application that can be installed on the current unit. Older applications will not be installed.	Read-only alphanumeric value
DL Status, Type, Bank	Indicates the DL Mode status, type and bank (i.e., type of code).	DL Status - Idle, Running, Timeout. Idle indicates the receiver is waiting for a download. Running indicates the receiver is processing a download. Timeout indicates the receiver didn't complete the download. Type - None, Rear Panel, HTTP or Over Air. Bank - App 5514, App 7109, FPGA 7109, Sat 7109, Screen logo, Menu Logo, Eth Logo, App PPC, PowerPC, DB Update or Exec Bin.
CDT#	Indicates the total number of expected code tables in the current download.	Read-only numeric value.
Recv	Displays the number of code tables received since the last completed or aborted download, or power-cycle.	Read-only numeric value.

Menu Item	Description	Parameters
Reject	Displays the number of code tables rejected. Tables are rejected whenever validation fails due to things like CRC failure or incorrect code or receiver type.	Read-only numeric value.
Command	Select a command to issue to the current download.	Restart, Abort or None. Abort stops a download that is currently being received. Restart restarts a previously aborted download. Note that the download does not resume from where it was aborted, but restarts from the beginning. None means no action is to be performed.
Date Format	Select the date format.	YYYY_MM_DD, DD_MM_YYYY, or MM_DD_YYYY
Time Format	Select the time format.	24Hr, 24Hr SuspendZero, 12Hr, 12Hr SuspendZero. The SuspendZero options omit the leading zero.
GMT Off	Select the local time zone offset relative to the GMT time. The time information in the transmitted stream is broadcast as GMT time and changing this setting will allow the unit to correctly display the local time.	+13:00, +12:00, +11:00, +10:00, +09:30, +09:00, +08:00, +07:00, +06:30, +06:00, +05:45, +05:30, +05:00, +04:30, +04:00, +03:30, +03:00, +02:00, +01:00, GMT, -01:00, -02:00, -03:30, -04:00, -05:00, -06:00, -07:00, -08:00, -09:00, -10:00, -11:00, -12:00

Setup Menu: TS Input

To view the TS (Transport Stream) Input menu from the Main menu, press the **RIGHT** arrow key once and then the **SELECT** key to reach the Setup menu. Then press the **RIGHT** arrow key once and the **SELECT** key to view the TS Input menu.

For instructions on how to select and store settings, see ***About the Front Panel*** (on page 38).

The TS Input menu has the following structure:

ASI Input

Menu Item	Description	Parameters
ASI Active	Select whether to tune to the ASI input. **Note:** Setting a new input to be active will deactivate the currently active input.	Act or No
Tune Mode	Select the tables required for the service list creation and signal acquisition.	Basic - Requires NIT to be present. Auto - Uses all the available service list tables and it will acquire if any table is present. Custom - Uses the Custom Tuning parameters, specified by the user. The default is Basic.

Menu Item	Description	Parameters
CA Ctl	Sets how the conditional access will attempt to descramble the scrambled programs. The behavior of this setting is different between PowerVu streams and those that require a CAM.	For PowerVu streams: Std - In standard mode, if a program is not authorized, even if some services are not scrambled, the whole program will not be authorized. Open - In open mode, if a program is not authorized, any services in the program that are not scrambled will still be available. For Non-PowerVu (CAM) streams: Std - In standard mode, if a program's CA system is not supported by the CAM, the channel is not authorized. Open - In open mode, all the program's CA systems are validated by the CAM. The channel is always authorized.
Select	This sets the parameters the receiver uses for signal switching.	RF Map or Preset. RF Map uses the orbital positioning settings to find and lock onto a signal, while it can be ignored for Preset.

RF1, RF2, RF3, RF4 (RFx) Input

Menu Item	Description	Parameters
RFx Active (RF1, RF2, RF3, RF4)	Select the input to be active. **Note:** Setting a new input to be active will deactivate the currently active input.	Act or No
Tune Mode	Select which tables are required for the service list creation and signal acquisition. **Note:** When editing the tuning, the device is in a transient state while acquiring tuning information and channel lists, etc. The receiver reverts to the previous set of tuning settings/information and channels until these changes are either saved or abandoned.	Basic - Requires NIT to be present. Auto - Uses all the available service list tables and it will acquire if any table is present. Custom - Uses the Custom Tuning parameters, specified by the user. The default is Basic.

Menu Item	Description	Parameters
CA Ctl	Sets how the conditional access will attempt to descramble the scrambled programs. The behavior of this setting is different between PowerVu streams and those that require a CAM.	For PowerVu streams: Std - In standard mode, if a program is not authorized, even if some services are not scrambled, the whole program will not be authorized. Open - In open mode, if a program is not authorized, any services in the program that are not scrambled will still be available. For Non-PowerVu (CAM) streams: Std - In standard mode, if a program's CA system is not supported by the CAM, the channel is not authorized. Open - In open mode, all the program's CA systems are validated by the CAM. The channel is always authorized.
Select	Sets the method used by the RF tuner to determine which input to use when switching transports.	UserCfg - User configuration will only use the active RF input. SW Map - Software map uses the orbital position settings from each input and map it to those in the NIT.
LO1 (GHz)	Sets the lower oscillator frequency, in GHz, of the LNB. In a single band oscillator, set its frequency, in GHz.	0.0 to 15.0 GHz. Must be lower than the value for LO2.
LO2 (GHz)	Sets the higher oscillator frequency, in GHz, of the LNB. In a single band oscillator, set this value to 0.0.	0.0 to 15.0 GHz. Must be higher than the value for LO1.

Menu Item	Description	Parameters
Crossover (GHz)	This is the crossover frequency, which is an internal threshold frequency used for selecting the LO1 or LO2 frequency, depending on the current Downlink frequency settings. This option is only used in dual-band LNB applications.	0.0 to 15.0 GHz. In single-band LNB applications, set this value to 0.0.
Satellite	This is the name of the satellite currently selected. Choose the satellite you want to use to receive the signal from the list of satellites available. When you select a satellite, the orbital position (OrbPos) is displayed. This is important for automatic switching from one RF input to another in the event of loss of the signal, allowing the receiver to acquire an alternate signal.	When the satellite is not listed, enter the known orbital position (OrbPos) of the satellite you want to use to receive the signal.
OrbPos	This is the location in orbit of the satellite currently being used. The satellite position (in degrees) in combination with the direction (either **E** (East) or **W** (West)) denotes the satellite position the dish connected to the current RF Input should point. This is used when the satellite is not available in the look-up menu list. For manual configuration, simply enter the location of the satellite using the numerical keypad. The receiver will not recognize the satellite name and identify it as Unknown. This setting is required to resolve any ambiguity between RF inputs during automatic disaster recovery.	Degrees
E/W	Denotes the satellite position the dish connected to the current RF Input should point. This is used when the satellite is not available in the look-up menu list.	E, W or NA
Pol	Marks the polarity of the signal connected to this RF input.	H (horizontal), Vert (vertical), A (Auto). Auto is only applicable when LNB Power is set to H-NIT or V-NIT.
Validate Orbital Position	This option allows you to configure and validate the RF inputs to match those expected by the network. The receiver will check to see if all the frequencies in the Network Information Table (NIT) can be tuned to.	Yes or No

Menu Item	Description	Parameters
Orbital Position Validation Date	This displays the last date that the 'Validate Orbital Position' operation was performed.	N/A
Freq (GHz)	This is the current Downlink operating frequency used by the receiver for tuning the received digital signal.	0.0 to 15.0 GHz
SymRate	This is the symbol rate. The symbol rate must match that of transmitted signal.	1.0 to 45.0 Ms/s for DVB-S. 1.0 to 30.0 Ms/s for DVB-S2 if Pilot Present is set to Yes. 5.0 to 30.0 Ms/s for DVB-S2 if Pilot Present is set to No.
FEC	Select the Forward Error Correction inner code rate. The FEC must match the FEC of the transmitted signal.	1/2, 2/3, 3/4, 5/6, 7/8, or Auto
L-Band	This is the L-Band operating frequency used by the receiver. This value is determined by the values set in the Freq and LO options.	950 to 2150 MHz
RF Lock	Indicate whether the tuner has locked onto the Radio Frequency signal with the current settings.	Lock or NoLock
Modulation	Sets the modulation type for the received signal.	DVB-S or DVB-S2
Rolloff	Sets the rolloff factor of the incoming signal.	.20, .25, .35. Use .20 or .35 when DVB-S modulation is used, and either of the three when DVB-S2 is used. Use a small number to reject or filter carriers close to the same frequency.
InputIQ	Select the Input signal spectrum inversion setting, which allows the operator to track and select inverted and non-inverted digital signals. This is normally used to automatically reject or filter out unwanted signals.	Auto, Normal, or Opposite. Auto - The signal is tracked and inverted for correct selection, as required. Opposite - The signal is always inverted. Normal - The signal is not inverted.

Menu Item	Description	Parameters
NetID	Select the Network ID of the uplink signal the receiver is to receive. The receiver's Network ID must match the Network ID associated with the transmitted signal.	1 to 65535. The default value is 1.
LNB Power	Set the power output of RF1 to the external LNB.	Off, 13V, 18V, V-NIT, or H-NIT. V-NIT and H-NIT will use vertical and horizontal polarity until it is automatically read from the NIT. **Note:** Power will not be applied to the LNB when set to Off.
22kHz	For dual band applications, select whether to transmit the 22 kHz tone Local Oscillator control signal of RF1.	On, Off, or Auto. Auto uses the crossover frequency to determine if the tone is transmitted.

Tune Mode

Custom

This menu is where you set up your custom properties. Select the channel to set up and then edit it.

Menu Item	Description	Parameters
Services List Mode	If using custom tune mode, select which tables are required for tuning.	Degraded or Rigorous. Rigorous - Requires all service list tables to be present to acquire the signal. Degraded - Requires any service list table to be present to acquire the signal.
BAT	This is not supported in the current release.	No
NIT	If using custom tune mode, select whether to use the Network Information Table (NIT) when creating the service list.	Yes or No

Menu Item	Description	Parameters
SDT	If using custom tune mode, select whether to use the Service Description Table (SDT) when creating the service list.	Yes or No
PAT	If using custom tune mode, select whether to use the Program Association Table when creating the service list.	Yes or No
Frequency Tuning	If using custom tune mode, select whether to use the NIT to tune to other transports, or to force the tuning to user configuration settings.	NIT or User Cfg. NIT - The receiver can change tuning parameters to use all transports available in the NIT. User Cfg - The receiver is forced to use the user selected tuning parameters.

Status

Menu Item	Description	Parameters
Service List Mode	Indicates if all the expected service list tables are present (Rigorous) or only some of the service list tables are present (Degraded)	Degraded or Rigorous
BAT	This is not supported in the current release.	No
NIT	Indicates whether the Network Information Table (NIT) is being used to create the service list.	Yes or No
SDT	Indicates whether the Service Description Table (SDT) is being used to create the service list.	Yes or No
PAT	Indicates whether the Program Association Table (PAT) is being used to create the service list.	Yes or No
Frequency Tuning	Indicates whether tuning is using the NIT to tune to other transports, or whether tuning is forced to use the user selected parameters.	NIT or User Cfg

Re-Acquire

Menu Item	Description	Parameters
Re-Acquire	Re-acquires the signal using the tuning parameters from user settings.	Abort or Continue. Select Abort to cancel the operation or choose Continue to complete the operation.

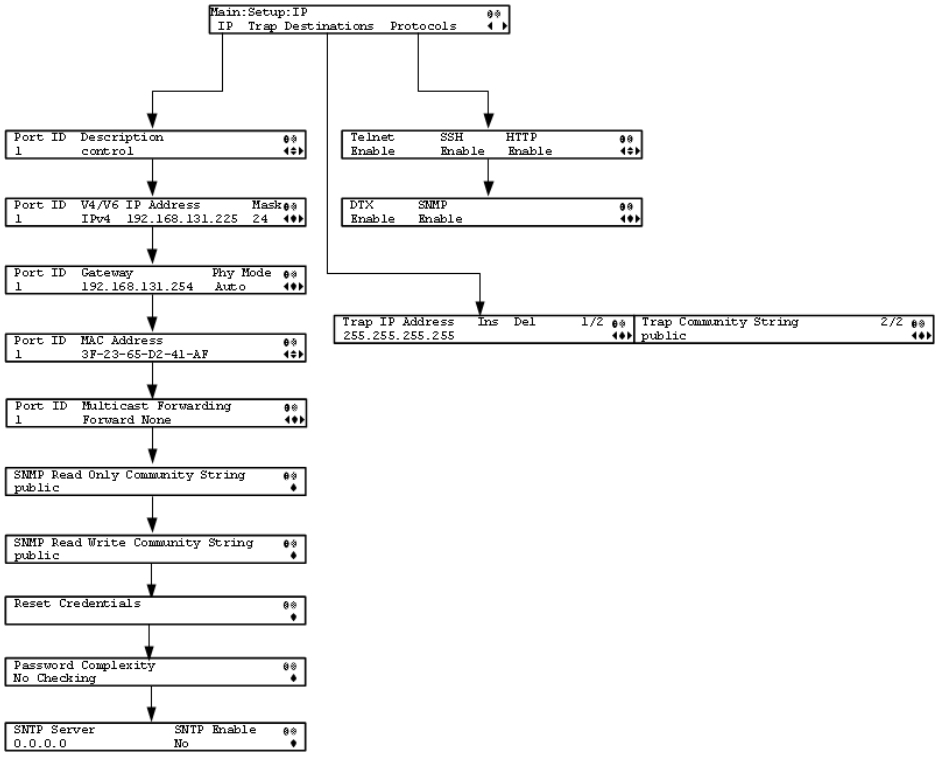
Setup Menu: IP

To view the IP menu from the Main menu, press the **RIGHT** arrow key once and the then the **SELECT** key to reach the Setup menu. Then, press the **RIGHT** arrow key twice and the **SELECT** key to view the IP menu.

The IP menu allows you to set the parameters for communicating with other equipment via the Ethernet Data and Management ports for MPEGoIP and MPE applications and upgrading application software.

For instructions on how to select and store settings, see ***About the Front Panel*** (on page 38).

The IP menu has the following structure:



IP

<table>
<tr><th>Menu Item</th><th>Description</th><th>Parameters</th></tr>
<tr><td>Port ID</td><td>Select the Ethernet interface to configure.</td><td>1, 2, or 3. Interface 1 is the control and management interface and interface 2 and interface 3 are data interfaces.
The default is 1.</td></tr>
<tr><td>Description</td><td>Sets the description or name for the Ethernet interface.</td><td>Up to 20 alphanumeric characters in length.</td></tr>
<tr><td>V4/V6</td><td>Select the IP protocol.</td><td>Only IPv4 is currently supported.</td></tr>
<tr><td>IP Address</td><td>Sets the IPv4 IP address for the interface.</td><td>12 digits in length (###.###.###.###)</td></tr>
<tr><td>Mask</td><td>Sets the number of CIDR (Classless Inter-Domain Routing) bits in the network mask.</td><td>8 to 30</td></tr>
<tr><td>Gateway</td><td>Sets the Network Gateway Address on the Network, used to expose the receiver to a WAN.</td><td>The IP Address/Mask and Gateway Address should be changed together, i.e., as a group. The following table shows the most commonly used Subnet mask values to enter for a chosen IP address mask, which will depend on the size of your network.
<table>
<tr><th>Mask</th><th>Subnet Mask</th></tr>
<tr><td>8</td><td>255.0.0.0</td></tr>
<tr><td>16</td><td>255.255.0.0</td></tr>
<tr><td>24</td><td>255.255.255.0</td></tr>
</table></td></tr>
<tr><td>Phy Mode</td><td>Set the speed and duplex type of the interface. Select Auto for PHY to negotiate speed and duplex with other devices on the network, or select 10 HD (half-duplex), 10 FD (full-duplex), 100 HD, 100 FD, or 1000 FD to lock into a fixed mode.</td><td>Auto (default), 1000FD (full duplex), 100HD (half duplex), 10FD, or 10HD</td></tr>
<tr><td>MAC Address</td><td>Displays the MAC address of the interface. It is set at the factory and is a read-only value.</td><td>N/A</td></tr>
</table>

Menu Item	Description	Parameters
Multicast Forwarding	Sets whether all the MPE data is forwarded to the network. It can forward up to 5 MPE PIDs. **Note:** This can only be configured on Port 2. Port 1 is fixed to Forward None. **Note:** The receiver supports up to a maximum of 10 Mbps throughput when forwarding 1500 byte packets.	Forward None or Forward All
SNMP Read Community String	Sets the password to read data from a device and to display diagnostics traps/alarms. This is used when communicating with a device within an SNMP environment.	Up to 31 alphanumeric characters in length. This string is case-sensitive. The default community string is: public.
SNMP Write Community String	Sets the password to write data to a device. This is used when communicating with a device within an SNMP environment.	Up to 31 alphanumeric characters in length. This string is case-sensitive. The default community string is: public.
Reset Credentials	If for some reason, you cannot access the decoder (due to a forgotten password, corrupted data, etc.), the recovery procedure for the decoder is as follows: Using the keypad, choose this field on the front panel menu. A default login username and randomly generated password will be displayed on the front panel display for approximately 30 seconds. The new account will have Admin privileges. It is recommended that this account be replaced by a login username/password chosen by the administrator. To change the username and password, you must be an Admin user. Refer to ***Setting Admin User Privileges via a Telnet Connection*** (on page 32). **Note:** After this recovery procedure, all existing user accounts will be lost.	

Menu Item	Description	Parameters
Password Complexity	Sets the password complexity for all users. The complexity level changes will only affect the new user accounts and password changes. It will not affect existing accounts.	No Checking, Minimal Checking, or Full Complexity Checking For more information, see the Password Complexity table below.
SNTP Server	Sets the NTP server address. If the NTP server address is not set (0.0.0.0), the IRD will not attempt to connect to the server.	12 digits in length (###.###.###.###)
SNTP Enable	Periodically request NTP timestamps from the NTP server and to synchronize its system (i.e., non-DVB related) time with the NTP server.	Yes or No

Password Complexity

Password Complexity	Description
No Checking	There are no restrictions on passwords. **Note:** A minimum of one character is required.
Minimal Checking	The passwords must comply with the following requirements: ■ It cannot contain username or reversed username. ■ It cannot contain any of the following strings: cisco, sciatl, ocsic, Itaics, atlsci, icslta, or any string achieved by full or partial capitalization of letters. ■ No letter is repeated more than three times in a row. ■ Must contain a minimum of four characters.
Full Complexity Checking	The passwords must comply with the following requirements: ■ It cannot contain username or reversed username. ■ It cannot contain any of the following strings: cisco, sciatl, ocsic, Itaics, atlsci, icslta,or any string achieved by full or partial capitalization of letters. ■ No letter is repeated more than three times in a row. ■ Must contain a minimum of eight characters. ■ Must contain a minimum of three of the following types of characters: capital letters, small letters, digits, and special characters.

Trap Destinations

Menu Item	Description	Parameters
Trap IP Address	Sets the destination IP address for SNMP trap messages for system events (for example, fault messages).	Up to 12 digits in length, e.g., 155.128.100.200
Ins, Del	You can choose to Insert or Delete entries. Up to 25 entries can be assigned to the Trap IP Address and Community String fields. To add a new entry, press Ins and enter the new entry in the IP Address or Community String field. To delete an existing entry, scroll to the IP address or community string you want to delete and press **Del**.	
Trap Community String	Sets the Community string for the Trap IP Address.	Public or custom string. Up to 35 characters. The default is: public.

Protocols

The **Protocols** menu allows you to control remote access protocols (Telnet, SSH, HTTP, DTX, and SNMP) to the IRD.

Menu Item	Description	Port Number	Parameters
Telnet	Controls Telnet access to the IRD. Select **Enable** to allow Telnet connections. Select **Disable** to disable the listener for the Telnet port.	TCP port #23	Enable (default) or Disable
SSH	Controls SSH access to the IRD. Select **Enable** to allow secure shell connections. Select **Disable** to disable the listener for the SSH port.	TCP port #22	Enable (default) or Disable
HTTP	Controls HTTP access to the IRD. Select **Enable** to allow web connections. Select **Disable** to disable the listener for the HTTP port.	TCP port #80	Disable or Enable (default)
DTX	Controls DTX access to the IRD. Select **Enable** to allow DTX connections. Select **Disable** to disable the listener for the DTX port.	UDP port #8401	Enable (default) or Disable

Menu Item	Description	Port Number	Parameters
SNMP	Controls SNMP access to the IRD. Select **Enable** to allow SNMP connections. Select **Disable** to disable the listener for the SNMP port.	UDP port #161	Enable (default) or Disable

By enabling or disabling the protocols, dynamic hardware and software firewalls are created for the D9854 receiver.

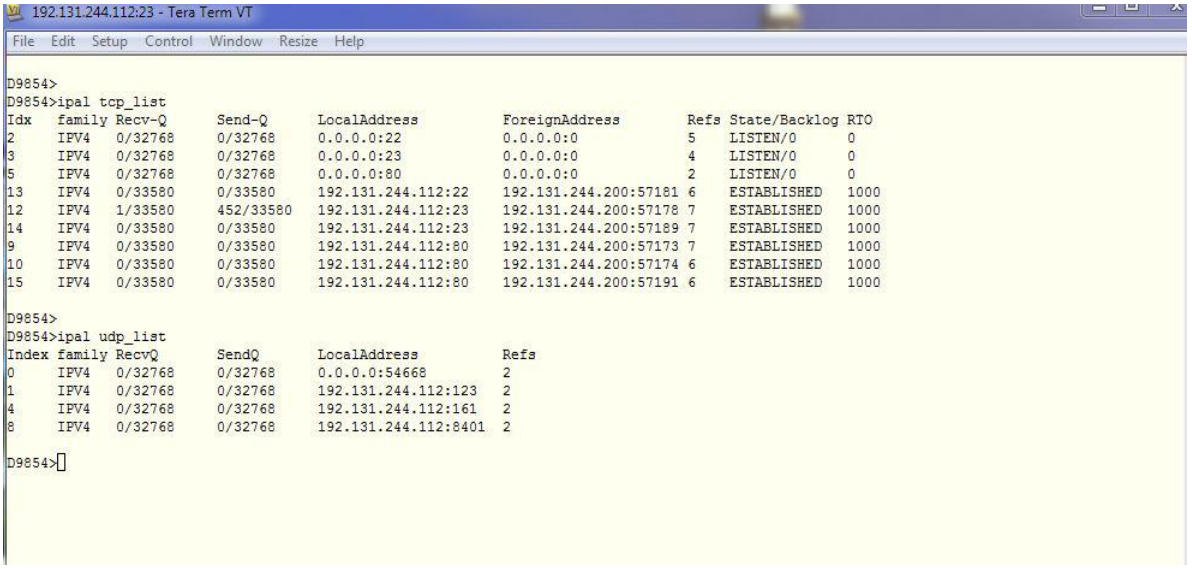
Accessing TCP and UDP Services

The following describes the commands used to access port information for all the supported protocols. The examples of TCP-based services are: Telnet, SSH, and HTTP. The examples of UDP-based services are: SNTP and SNMP.

Proceed as follows to obtain TCP or UDP information:

1 Start a new communication session with the receiver using a utility, such as Tera Term Pro or PuTTY. For more information on starting a new connection, see ***Starting a Telnet Session*** (on page 32).

2 In the D9854 command prompt, type `ipal tcp_list` for a list of TCP connections or `ipal udp_list` for a list of UDP connections and press **Enter**. The following is an example of the results:



3 All other connections that are not specifically requested by remote access protocol selection or triggered by user actions, such as an FTP transfer, do not have active listeners and the corresponding TCP/UDP ports are closed. To strengthen security, the hardware firewall drops all incoming packets for the closed ports.

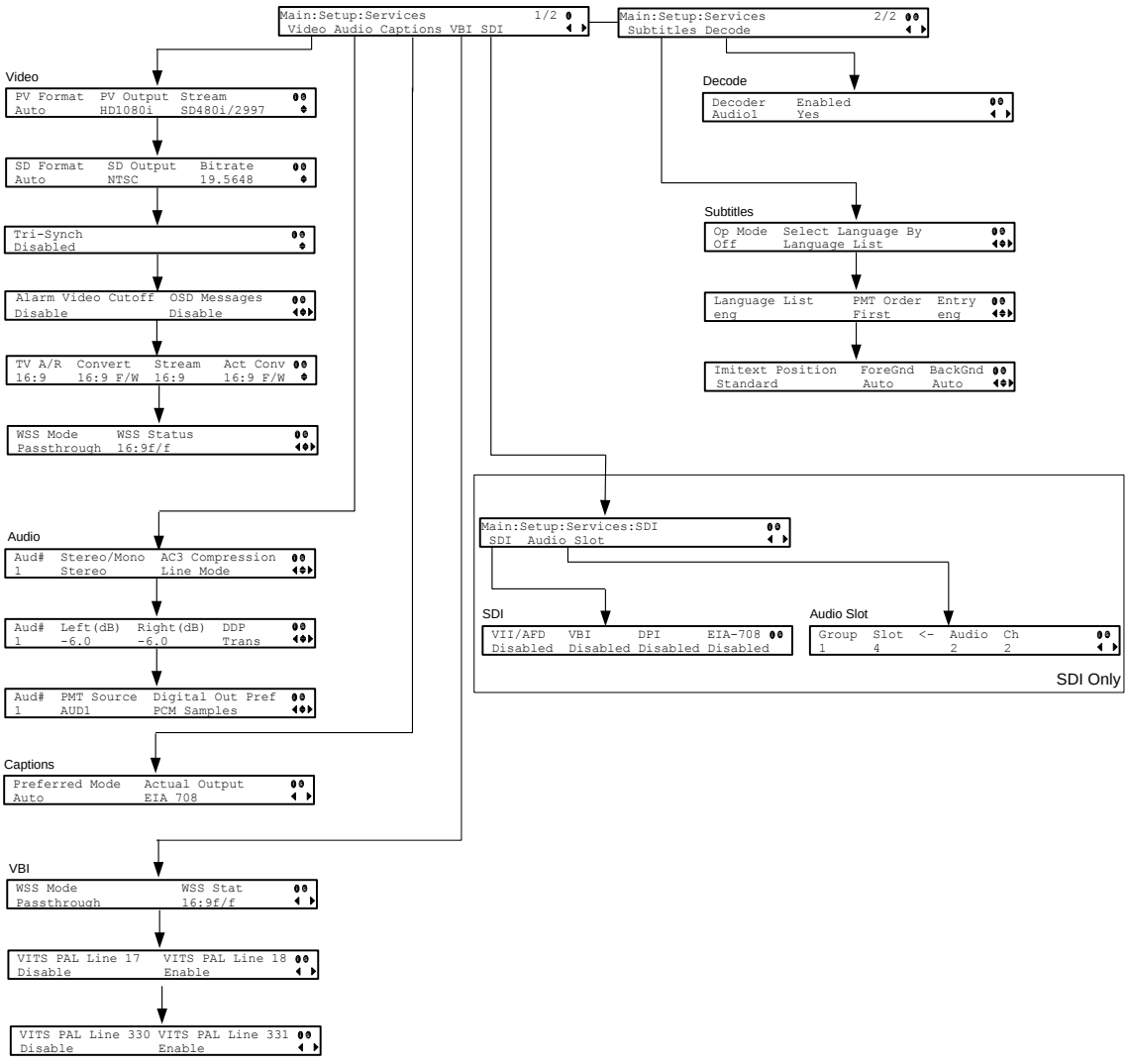
Note: The hardware firewall may impose different rules for the Management and Data ports. For example, remote access protocols, such as SSH or HTTP, are only enabled on the Management port.

Setup Menu: Services

To view the Services menu from the Main menu, press the **RIGHT** arrow key once and then the **SELECT** key to reach the Setup menu. Then press the **RIGHT** arrow key three times and the **SELECT** key to view the Services menu.

The Services menu allows you to set up all the operating parameters associated with audio, video and captions services.

Each parameter is described below. The menu has the following structure:



Video

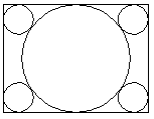
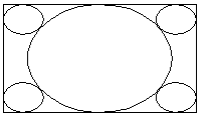
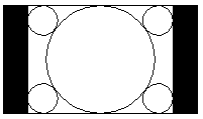
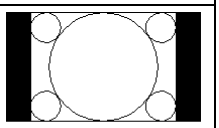
Menu Item	Description	Parameters
PV Format	Sets the primary video output format for local decoding.	Auto, SD, HD 720p, or HD 1080i

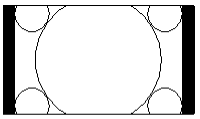
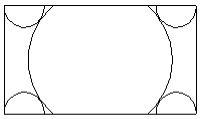
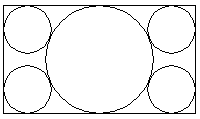
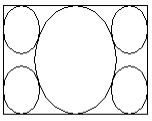
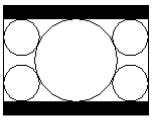
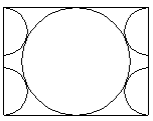
Menu Item	Description	Parameters
PV Output	Indicates the actual output video format. This value is read-only.	SD, HD 720p, or HD 1080i
Stream	Indicates the video format of the input video stream. This value is read-only.	
SD Format	Selects the standard definition output format to use on the primary video if the PV Output is set to SD.	Auto, NTSC, PAL-N (AR), PAL-M or PAL-B/G/I/D. Use NTSC for 525-line systems and PAL-B/G/I/D for 625-line systems.
SD Output	Indicates the actual standard definition format of the primary video output if the PV Output is set to SD.	NTSC, PAL-N (AR), PAL-M or PAL-B/G/I/D
Bitrate	Indicates the bit rate of the input video stream, in Mbps.	1.0 to 15.0 Mbps
Tri-Synch	Select whether to use component Tri-Synchronization.	Enabled or Disabled
Alarm Video Cutoff	Sets whether the video output is cut off if any enabled alarm is active on the receiver. When video is cut off, there will be no horizontal or vertical synchronization on the output. This is useful for downstream redundancy switching by detecting a loss of video signal. **Note:** This same function also exists under Setup: Alarm/Warning.	Enable or Disable. The default is Disable.
OSD Messages	Sets whether alarms and warnings are to be displayed on the on-screen display (e.g., TV monitor).	Enable or Disable
TV A/R	Select the standard definition aspect ratio of your TV monitor.	4:3 or 16:9
Convert	Select the conversion method that the receiver will perform on the incoming signal for the picture to be displayed correctly on your TV based on the TV A/R setting.	None, Auto, Auto AFD, 16:9 L/B, 4:3 P/B, 14:9, 4:3 CCO, 16:9 SCALE. The default is Auto. For more information, see Aspect Ratio Conversions.
Stream	Indicates the aspect ratio of the incoming video stream. This is read-only.	4:3 or 16:9

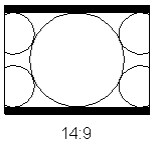
Menu Item	Description	Parameters
Act Conv	The actual aspect ratio conversion the receiver will perform based on what you have selected. This is read-only. Refer to the Aspect Ratio Conversions table below for the conversions performed by the receiver based on your selection, and the effect on the picture displayed by the receiver in each case (without Auto AFD)	None, 16:9 L/B, 4:3 P/B, 14:9, 4:3 CCO, 16:9 SCALE
WSS Mode	Select the Wide Screen Signaling output mode. It is used to select how the receiver affects PAL WSS when it is present in the VBI line 23.	Auto:Create - Creates WSS to output the correct aspect ratio when performing aspect ratio conversion. Auto:Modify - If WSS is present in the input stream, it is modified to output the correct aspect ratio when performing aspect ratio conversion. If WSS is not present in the input, no WSS will be present in the output. Suppress - Removes WSS output. Passthrough - Passes WSS unmodified as received by the receiver. The default is Auto.
WSS Status	This indicates the current output value of PAL WSS in VBI line 23.	4:3 F/F, 16:9 L/B CEN, 16:9 L/B TOP, >16:9 L/B, 14:9 L/B CEN, 14:9 L/B TOP, 14:9 F/F CEN, 16:9 F/F, or UNDEFINED **Note:** F/F is full format, and L/B is letter box.

Aspect Ratio Conversions

The following table displays the conversions performed by the receiver based on the Act Conv selection:

Stream	TV A/R	Conversion	Act Conv	Description	Image
4:3	4:3	None	None	Normal Picture	 4:3
4:3	4:3	Auto	None	No conversion	
4:3	4:3	16:9 L/B	None	Conversion is not possible. Normal picture.	
4:3	4:3	4:3 CCO	None	Conversion is not possible. Normal picture.	
4:3	4:3	4:3 P/B	None	Conversion is not possible. Normal picture.	
4:3	4:3	14:9	None	Conversion is not possible. Normal picture.	
4:3	4:3	16:9 SCALE	None	Conversion is not possible. Normal picture.	
4:3	16:9	None	None	Picture is short & fat.	 4:3 Stretch
4:3	16:9	Auto	4:3 P/B	Uses 4:3 P/B.	 4:3 PB
4:3	16:9	16:9 L/B	None	Conversion is not possible. Picture appears short and fat.	
4:3	16:9	4:3 CCO	None	Conversion is not possible. Picture appears short and fat.	
4:3	16:9	4:3 P/B	4:3 P/B	4:3 picture is centered in a pillar-style box.	 4:3 PB

4:3	16:9	14:9	14:9	Compromises some up-sampling. Some black bars and cropping are visible.	 14:9
4:3	16:9	16:9 SCALE	16:9 SCALE	Vertically up-samples the centre of the 4:3 picture and crops the top and bottom of the screen.	 16:9 FH
16:9	16:9	None	None	Normal	 16:9
16:9	16:9	Auto	None	No conversion. Normal picture.	
16:9	16:9	16:9 L/B	None	Conversion is not possible. Normal picture.	
16:9	16:9	4:3 CCO	None	Conversion is not possible. Normal picture.	
16:9	16:9	4:3 P/B	None	Conversion is not possible. Normal picture.	
16:9	16:9	14:9	None	Conversion is not possible. Normal picture.	
16:9	16:9	16:9 SCALE	None	Conversion is not possible. Normal picture.	
16:9	4:3	None	None	Picture appears tall and thin.	 16:9 Compressed
16:9	4:3	16:9 L/B	16:9 L/B	Vertically down-samples the picture and applies black bars at the top & bottom of the screen.	 4:3 LB
16:9	4:3	4:3 CCO	4:3 CCO	Horizontally up-samples the centre portion of the picture to fill the 720.	 4:3 Crop

16:9	4:3	4:3 P/B	None	Conversion is not possible. Picture appears tall and thin.	
16:9	4:3	14:9	14:9	Compromises some up-sampling. Some black bars and some cropping are visible.	 14:9
16:9	4:3	16:9 SCALE	None	Conversion is not possible. Picture appears tall and thin.	

Note: Active Format Descriptor (AFD) - normally it is necessary to set both the TV Aspect Ratio and Conversion to correctly display the video program on the TV system. The Auto AFD option enables the receiver output to automatically match the display format of the video program to the TV system based on specific (uplink) program information carried in the transport stream. In this case, the receiver performs the conversion based on the TV Aspect Ratio setting combined with the program-specific uplink information to provide the "best fit" for display of the program material on the TV. This feature is primarily used in 16:9 and 14:9 (wide screen) applications.

Audio

Menu Item	Description	Parameters
Aud#	Sets which balanced audio output on the rear panel to configure.	1 or 2
Stereo/Mono	Sets the output mixing.	Stereo - Left and Right are passed directly through to Left and Right R-MONO - Right is passed to both the Left and Right L-MONO - Left is passed to both the Left and Right Mixed - Left is passed to both the Left and Right, and Right is passed to both the Left and Right.
AC3 Compression	Sets the AC3 compression mode to use if the output is compressed Dolby Digital audio.	Line Mode, Custom 1, Custom 0 or RF Mode. RF Mode is recommended for analog cable modulators.
Left (dB)	Sets the volume adjustment for the Left audio channel, in dB.	-6.0 to +6.0 Any value can be entered with the numeric keypad (in the appropriate range), but the UP and DOWN arrows will increase or decrease in 0.5 dB steps.

Menu Item	Description	Parameters
Right (dB)	Sets the volume adjustment for the Right audio channel, in dB.	-6.0 to +6.0 Any value can be entered with the numeric keypad (in the appropriate range), but the UP and DOWN arrows will increase or decrease in 0.5 dB steps.
DDP	Sets the Dolby Digital Plus output mode. If Trans is selected, it will transcode to Dolby Digital (AC-3) audio output. If Passthrough is selected and the bitrate is less than 1536 kbps (48 Khz), passthrough is performed and Dolby Digital Plus compressed out is received. If Passthrough is selected and the bitrate is more than 1536 Kbps, transcoding will be performed. This setting affects only the AES-3id and SDI outputs. **Note:** Dolby Digital Plus is only available on Audio 1. Ensure that the Aud# is set to Aud1. **Note:** Ensure that the Digital Out Pref is set to Compressed for digital passthrough. Otherwise, only decoded PCM will be available. This parameter has no effect if the audio source is not Dolby Digital Plus.	Trans (Transcoded) or Pass (Passthrough)
PMT Source	Selects the PMT source for the audio channel.	None, AUDI to AUD64
Digital Out Pref	Sets the output preference for the SDI output or AES-3id output.	PCM Samples - If the audio source is MPEG Layer II format, the output will be routed to the SDI output as PCM. Compressed - If the audio source is AES compressed, the output will routed to the AES-3id output, compressed.

Digital Out Preference

When Dig Out Pref is set to PCM Samples, the output is PCM regardless of whether it's MPEG, Dolby Digital (AC-3) or AAC audio. Additionally, when the output is Compressed, MPEG-1 L1 and L2 will be output PCM, even though Dolby Digital (AC-3) and AAC is compressed (and transcoded).

	Digital Output Preference		
Output Input	**PCM Samples**	**Compressed**	
		DDP Mode	
		Transcode (Converter)	**Passthrough**
MPEG LA (MPEG-1 and MPEG-2)	PCM	PCM	PCM
Dolby Digital (AC-3)	PCM	Dolby Digital (AC-3)	Dolby Digital (AC-3)
Dolby Digital Plus (E-AC-3) (Bit rate < 1.5 Mbps)	PCM	Dolby Digital (AC-3)	Dolby Digital Plus (E-AC-3) (no over-clocking, x1)
Dolby Digital Plus (E-AC-3) (Bit rate > 1.5 Mps)	PCM	Dolby Digital (AC-3)	Dolby Digital (AC-3)
MPEG-2 AAC, MPEG-4 (AAC and HE-AAC)	PCM	MPEG-2 AAC, MPEG-4 (AAC and HE-AAC)	MPEG-2, MPEG-4 (AAC and HE-AAC)

Captions

Menu Item	**Description**	**Parameters**
Preferred Mode	Selects the type of closed captioning to use if there are multiple available in the stream.	Auto, SA Custom, EIA 708, Type 3, Type 4 SA, DVS 053 Type 4 ATSC, Reserved or DVS 157. The default is Auto. **Note:** SA Custom is not supported when telecine video coding is enabled.
Actual Output	Indicates the actual closed caption mode in the output. This is read-only.	Auto, SA Custom, EIA 708, Type 3, Type 4 SA, Type 4 ATSC, Reserved, or DVS 157

VBI

Menu Item	Description	Parameters
WSS Mode	Selects the Wide Screen Signaling output mode. It is used to select how the receiver affects PAL WSS when it is present in the VBI line 23.	Auto:Create - Creates WSS to output the correct aspect ratio, when performing aspect ratio conversion. Auto:Modify - If WSS is present in the input stream, it is modified to output the correct aspect ratio when performing aspect ratio conversion. If WSS is not present in the input, no WSS will be present in the output. Suppress - Removes WSS output. Passthrough - Passes WSS unmodified as received by the receiver. The default is Auto.
WSS Stat	This indicates the current output value of PAL WSS in VBI line 23.	4:3 F/F, 16:9 L/B CEN, 16:9 L/B TOP, >16:9 L/B, 14:9 L/B CEN, 14:9 L/B TOP, 14:9 F/F CEN, 16:9 F/F, or UNDEFINED **Note:** F/F is full format, and L/B is letter box.
VITS PAL Line 17, 18, 330, 331	Select whether to enable or disable Vertical Interval Test Signal on PAL Lines 17, 18, 330, or 331.	Enable or Disable

SDI

Menu Item	Description	Parameters
VII	This selects whether to enable or disable the SDI VII (video index)/AFD output in SDI.	Enabled or Disabled
VBI	This selects whether to enable or disable the VBI output in SDI.	Enabled or Disabled
DPI	This selects whether to enable or disable the DPI output in SDI.	Enabled or Disabled

Menu Item	Description	Parameters
EIA-708	This selects whether to enable or disable the EIA-708 output in SDI.	Enabled or Disabled

Audio Slot

Menu Item	Description	Parameters
Group, Slot <- Audio Ch	This selects the audio channel grouping, and audio channels from the available audio group.	Group: This the channel group - 1 to 4. Slot: This is the HANC position - 1 to 4. Audio: This is the audio source - 1, 2. Ch: This is the source audio channel - 1, 2.

Subtitles

This menu allows you to configure the type of subtitling (for example, DVB or Imitext) displayed by the receiver, and how the receiver displays subtitling on the TV.

Menu Item	Description	Parameters
Op Mode	Sets the subtitle mode.	Off - No subtitles are displayed. On - Displays DVB or Imitext subtitles, if available. DVB - Displays only DVB titles, if available. Otherwise, no subtitles are displayed. Imitext - Displays only Imitext subtitles, if available. Otherwise, no subtitles are displayed.
Select Language By	Select the input source for the subtitle language.	Language List - Allows you to select a language from the available list. Language Entry - Allows you to enter a language code. PMT Order - Allows you to select a PMT order. The default setting is Language List. Language Entry and PMT Order are more applicable for advanced applications.

Menu Item	Description	Parameters
Language List	If Language List was selected in the Select Language By menu, select the MPEG language to display.	ara (Arabic), btk (Batak (Indonesia), ben (Bengali), bul (Bulgarian), chi (Chinese), cze (Czech), dan (Danish), dut (Dutch), eng (English), fin (Finnish), fre (French), ger (German), gre (Greek), heb (Hebrew), hin (Hindi), hun (Hungarian), ice (Icelandic), ind (Indonesian), ita (Italian), jpn (Japanese), kor (Korean), may (Malay), mul (Multiple Languages), nor (Norwegian), per (Persian), pol (Polish), por (Portuguese), rum (Romanian), rus (Russian), san (Sanskrit), scc (Serbian), sin (Sinhalese), slo (Slovak), som (Somali), spa (Spanish), swe (Swedish), tai (Tai Other), tam (Tamil), tha (Thai), tur (Turkish), ukr (Ukrainian), or vie (Vietnamese)
PMT Order	If PMT Order was selected in the Select Language By menu, select the subtitle PID entry to display. This information is available from your uplink service provider.	First to Eighth
Entry	If Language Entry was selected in the Select Language By menu, select the subtitle PID entry to display. The information is available from your uplink service provider.	Enter the three-character code provided by your uplink service provider under Entry using the numeric keypad (e.g., eng for English). For a list of language codes, see Language Codes - Sorted by Alpha 3-Letter Code (ISO 639-2)
Imitext Position	Sets the position of the on-screen subtitle text.	Standard or Extended
ForeGnd	Sets the text color for Imitext subtitles.	Auto, Yellow, or White. Auto displays text in the color transmitted by the subtitling equipment. Yellow and White override the color set by the uplink, and display text in the selected color.

Menu Item	Description	Parameters
BackGnd	Sets the text background for Imitext subtitles.	Auto - Uses the uplink subtitling equipment setting. Shadow - Applies an outline to the right side of each text character. No background box is applied to subtitles, i.e., text is visible directly on top of video. Opaque - Applies a black box to each text character. Semi - Applies a semi-transparent box to subtitle text. None - No shadow or outline is applied to subtitle text.

Decode

Menu Item	Description	Parameters
Decoder	Select the local decode service to configure.	Video, Audio1 to Audio4, VBI (Vertical Blanking Interval) DATA (low speed data), MPE1 to MPE5 (Multiprotocol Encapsulation), STT (Subtitles), or DPI (Digital Program Insertion)
Enabled	Select whether the local decoding of this service is enabled or disabled.	Yes or No

Setup Menu: Common Interface (CI)

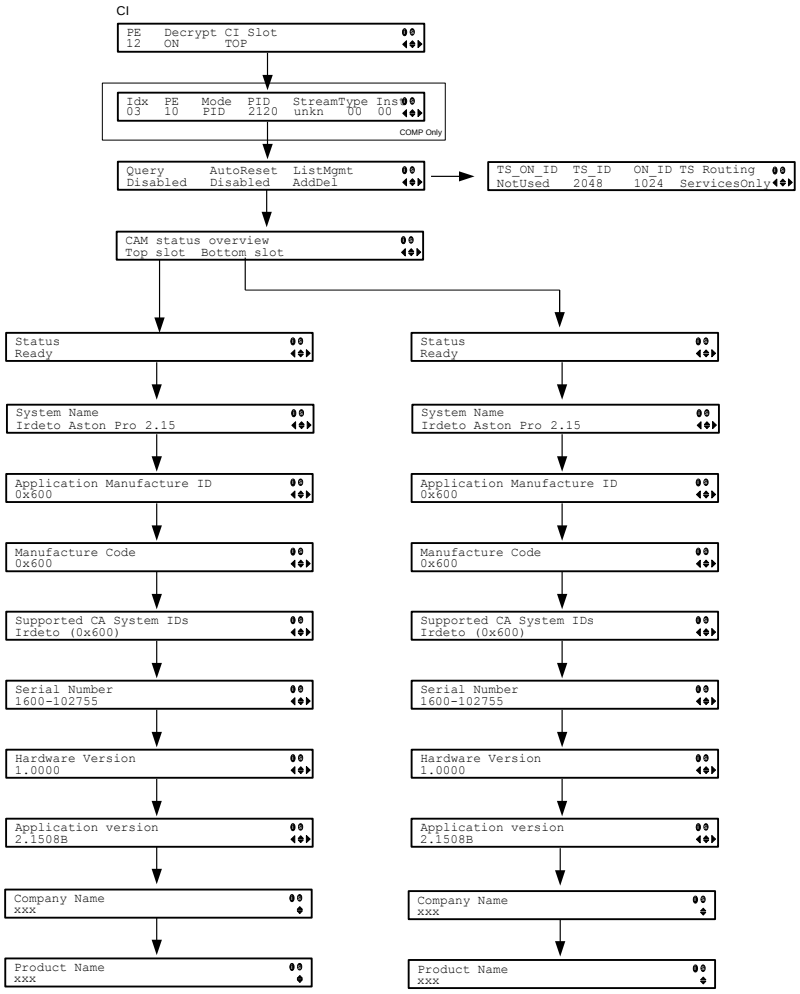
To view the CI menus from the Main menu, press the RIGHT arrow key once and then the SELECT key to reach the Setup menu. Then press the RIGHT arrow key four times and the SELECT key to view the CI menu.

The Common Interface (CI) slots are located under the door on the front panel. They allow use of a CAM (Conditional Access Module) Smart Card to decrypt purchased programming.

You must be authorized to view the programming available via the Smart Card from your service provider.

CAMs must be purchased from Cisco. For a list of the supported CAMs, see Common Interface Modules.

For instructions on how to select and store settings, see About the Front Panel. The CI menu has the following structure:



CI

Menu Item	Description	Parameters
PE	Select the Program Entry (PE) to configure the decryption settings.	PE1 to PE32
Decrypt	Determines whether to decrypt the channel or to specify the specific components to decrypt.	ON (default) - Decrypts the entire program entry. OFF - Disables decryption for the current program entry. Comp - Allows specific components to be decrypted, as specified in the component list. **Note:** If the CI Slot is set to Auto for PE1, then Decrypt can only be set to ON.
CI Slot	Select the CAM slot to use for decryption.	TOP, BOTTOM, AUTO AUTO - PE1 only. The software automatically assigns the slot capable of decrypting the stream. If CI Slot is set to AUTO, Decrypt must be set to ON. TOP - The top CAM slot is used for decryption. BOTTOM - The bottom CAM slot is used for decryption.
COMP only	If any program entries have selected Comp for the Decrypt parameter, you can customize the PID or stream type to decrypt the program. To Add a Record, press the ADV button, select Insert and define the appropriate parameters. To delete an existing record, select Delete and confirm your deletion. There are three different methods in setting a customized record: PID - Set **Mode** to PID and enter **PID** number. Stream Type - Set **Mode** to STREAM, select a **Stream** type (audio, video, subtitle, ttx, or user) and enter Inst (instance) of the stream type. There is an additional configuration if you select user as the Stream type (see below). Stream Type: User - Set **Mode** to STREAM, **Stream** type to USER, manually enter the stream code in **Type**, and then the **Inst** (instance) of the stream type.	

Menu Item	Description	Parameters
Idx	Select the component record to edit.	1-64 (up to 32 records for each CAM)
PE	Set the Program Entry the component is located.	1 to 32
Mode	Select whether to choose the component by PID or by stream type.	PID or STREAM
PID	If decrypting by PID, set the PID number.	0 to 8192
Stream	If decrypting by stream type and set the stream type.	AUD (audio), VID (video), SUBT (subtitles), TTX (teletext), USER **Note:** Select USER to manually enter a stream type in the **Type** parameter.
Type	If decrypting by stream type and the stream category is USER, set the stream type value.	0 to 255
Inst	If decrypting by stream type, set the instance of the current stream type.	1 to 64
Query	Set to Enable to query the CAM prior to decryption to ensure that the program can be decrypted.	Enabled or Disabled (default)
Auto Reset	Set to Enable to automatically reset the card.	Enable or Disabled (default)
List Mgmt	Select whether the Common Interface List Management should add or delete individual programs or update all the programs when the list changes.	AddDel or Update All **Note:** Updating all the programs will cause a temporary loss of service for all the programs when another is being modified.
TS_ON_ID	Set to Enable if you want to restrict the incoming transport stream. If the incoming stream does not match the transport stream and original network ID specified (TS_ID and ON_ID), the program will not be decrypted.	Enable or Disable (default)
TS_ID	Specify the Transport ID.	0 to 65535

Menu Item	Description	Parameters
ON_ID	Specify the Transport Original Network ID.	0 to 65535
TS Routing	Select EntireTS to use the CAM to decrypt the entire transport stream, or select ServicesOnly to use the CAM to decrypt only the PIDs being used by the active services.	EntireTS or ServicesOnly

Top/Bottom Slot

Menu Item	Description	Parameters
CAM Status Overview	View the status of the CAM that is located in the top or bottom slot.	Top slot or Bottom slot
Status	Displays the status of the CAM.	Ready or Not Ready
System Name	Indicates the system name of the CAM.	
Application Manufacture ID	Displays the factory loaded application number of the CAM.	
Manufacture Code	Indicates the manufacture's code.	
Supported CA System IDs	Displays the CA system identification name of the CAM. Some CAMs may support multiple CA system IDs.	
Serial Number	Indicates the unique serial number of the CAM.	
Hardware Version	Displays the hardware version number of the CAM.	
Application Version	Displays the software version number of the CAM.	
Company Name	Displays the company name of the CAM.	
Product Name	Displays the product name of the CAM.	

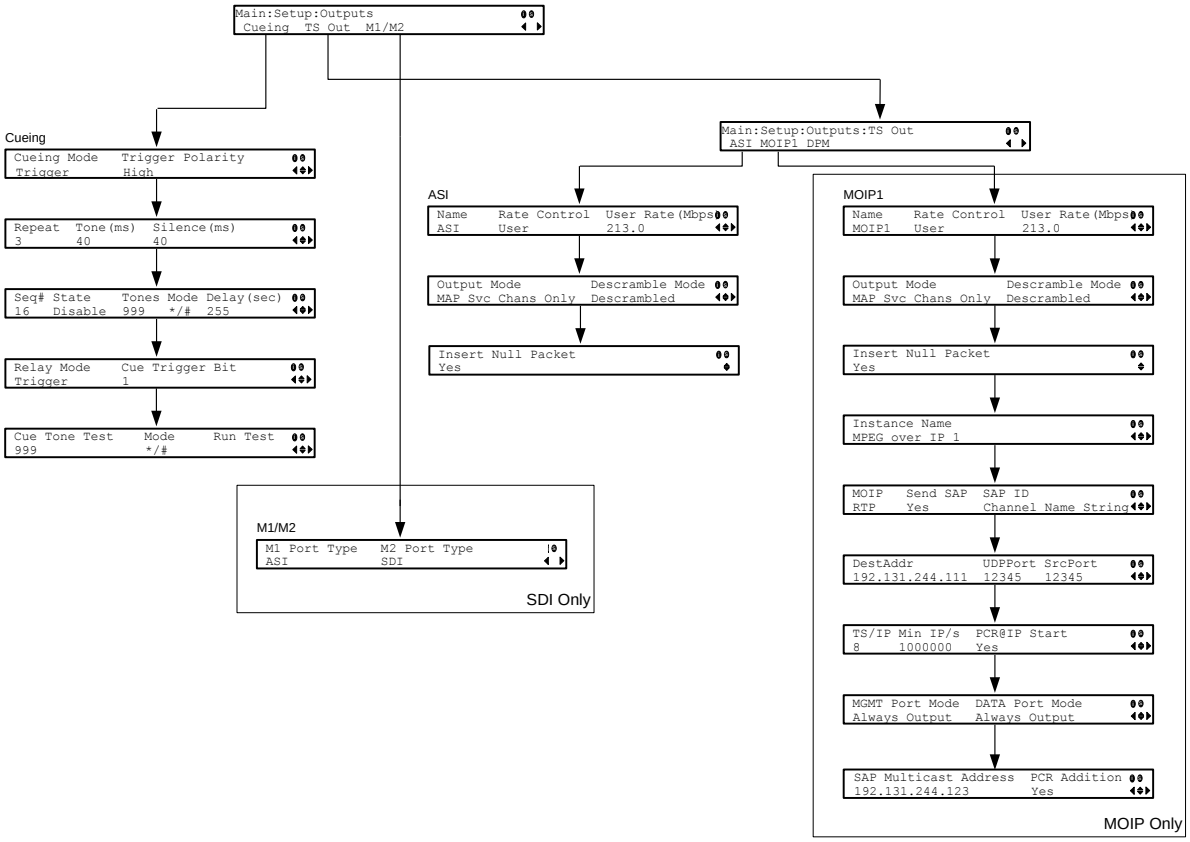
Setup Menu: Outputs

To view the Outputs menus from the Main menu, press the RIGHT arrow key once and then the SELECT key to reach the Setup menu. Then press the RIGHT arrow key five times and the SELECT key to view the Outputs menu.

The Outputs menu allows you to set up the rear panel control relays for alarms, cue tones and cue triggers, and the transport stream outputs, and Digital Program Mapping (DPM).

For instructions on how to select and store settings, see About the Front Panel.

The Outputs menu has the following structure:



Cueing

Menu Item	Description	Parameters
Cueing Mode	Select whether cueing output should be DTMF tones or trigger pins.	Trigger or Tone Tone - Cue tones are standard Dual-Tone Multi-Frequency (DTMF) tones. The tones are generated at the Cue Tone/Relay output on the rear panel of the receiver. Trigger - Cue trigger refers to open-collector pins which can be toggled at the Cue Tone/Relay output on the rear panel of the receiver.
Trigger Polarity	If the Cueing Mode was set to Trigger, select the pin polarity.	High or Low High - Pins act as open or floating collectors on an active cueing signal and as ground on an inactive signal. Low - Pins act as ground on an active cueing signal and as open or floating collectors on an inactive signal.
Repeat	If the Cueing Mode was set to Tone, set the number of consecutive tone sequences to be generated. Values greater than 1 are provided when a scenario demands repetition to ensure that the ad insertion equipment receives the signal.	1, 2, or 3. The default is 3.
Tone (ms)	If the Cueing Mode was set to Tone, set the duration of each tone, in milliseconds.	0 to 80. The default is 40.
Silence (ms)	If the Cueing Mode was set to Tone, set the duration, in milliseconds, of each silence between tones.	0 to 80. The default is 40.
Seq#	Select the tone sequence to configure.	1 to 16
State	Select whether the current tone sequence is enabled or disabled.	Enabled or Disabled. When disabled, no cue tone is output.

<table>
<tr><th>Menu Item</th><th>Description</th><th>Parameters</th></tr>
<tr><td>Tones</td><td>Sets the three digit tone sequence.</td><td>000 to 999</td></tr>
<tr><td>Mode</td><td>Sets the tone sequence mode.</td><td>* - Start tone only
- End tone only
*/# - Start and end tones. The end tone is signaled after waiting the time specified in Delay(sec).</td></tr>
<tr><td>Delay(sec)</td><td>If the Mode was set to */# (Start/Stop), set the delay, in seconds, between the start and stop sequences.</td><td>1 to 255. The default is 30.</td></tr>
<tr><td>Relay Mode</td><td>The relay can be programmed to respond to an alarm or warning state, or the state of one of the eight cue trigger pins. The response is generated at the Cue Tone/Relay output on the rear panel of the receiver.</td><td>Alarm or Trigger
The following table displays the possible field settings and their relationship to the receiver output:
<table>
<tr><th rowspan="2">Relay Mode</th><th rowspan="2">Condition</th><th colspan="2">Relay Contact</th></tr>
<tr><th>NC-C</th><th>C-No</th></tr>
<tr><td rowspan="3">Alarm</td><td>Unit Power Off</td><td>Open</td><td>Close</td></tr>
<tr><td>Alarm State</td><td>Open</td><td>Close</td></tr>
<tr><td>No Alarm</td><td>Close</td><td>Open</td></tr>
<tr><td rowspan="2">Trigger</td><td>Active (selected in PNC)</td><td>Close</td><td>Open</td></tr>
<tr><td>Inactive</td><td>Open</td><td>Close</td></tr>
</table></td></tr>
<tr><td>Cue Trigger Bit</td><td>If the Relay Mode was set to Trigger, select the cue trigger bit/pin that will activate the relay.</td><td>1 to 8</td></tr>
<tr><td>Cue Tone Test</td><td>Sets the three digit cueing tone test sequence.</td><td>000 to 999</td></tr>
<tr><td>Mode</td><td>Sets the test sequence mode.</td><td>* - Start tone
- End tone</td></tr>
<tr><td>Run Test</td><td>Select and press continue to run the cue tone test according to the Cue Tone Test and Mode.</td><td></td></tr>
</table>

M1/M2

Menu Item	Description	Parameters
M1 Port Type	This option allows the operator to set the output format for the M1 port.	ASI or SDI
M2 Port Type	This option allows the operator to set the output format for the M2 port.	ASI or SDI

TS Out - ASI

Menu Item	Description	Parameters
Name	Displays the name assigned to the transport output for ease of reference. This is read-only.	20-character string

Menu Item	Description	Parameters
Rate Control	Select the output rate control.	Auto - The output rate follows that set by the uplink. The output rate will be the same as the input rate (including all null packets). This means the output bit rate is determined automatically based on the input source symbol rate and FEC value. User - The output rate is specified by User Rate(Mbps). It is determined by the user setting regardless of the input source. SFN Units Only: Auto - Sets the output rate at 32 Mbps for DVB-T transports without null packet stuffing. If the incoming rate is lower then 32 Mbps, the receiver will burst up to 32 Mbps, but will average to the incoming bit rate. User - The output rate is specified as the Output Rate parameter with null packet stuffing disabled. The output rate must be set high enough to pass the entire transport or the output will be corrupted. If the incoming rate is lower then the set output rate, the receiver will burst up to the output rate, but will average to the incoming bit rate.
User Rate(Mbps)	If the Rate Control was set to User, set the maximum output bit rate. If null packets are inserted, this will be the output rate. This setting is used when the signal source is RF or ASI and allows you to set the output bit rate to a value expected by equipment connected to the ASI output.	0 to 213 Mbps **Note:** Output data may be lost if this bit rate is set to a value less than the actual signal bit rate.

Menu Item	Description	Parameters
Output Mode	Select the DPM output mode for the current output. With the exception of No Output, selecting a mode will configure the DPM settings to achieve the specified behavior. In this way, they act as DPM presets. Any changes then made to the DPM settings will switch the mode to Full DPM Control. It is highly recommended to use either one of these basic modes, or, for advanced setup, enter the DPM mapping before setting the Output Mode.	No Output - No ASI output will be generated and the ASI port will be disabled. Passthrough - The output will be identical to the input. All PEs will be set to Pass and other DPM settings will also be set. Service Chans Only - This is similar to Passthrough, except that only channels applied to program entries are available on the output. MAP Passthrough - The output will be identical to the input, except that channels and PIDs will be mapped using the DPM settings. When selecting MAP Passthrough, the option to re-sync will be provided. If you select Yes, it will set the DPM mapping to match the current input. If you select No, it will use the existing DPM maps. MAP Svc Chans Only - This is similar to MAP Passthrough, except that only channels applied to program entries are available on the output. Full DPM Control - The output will be generated according to the DPM settings. This is a manual control setting.
Descramble Mode	Select whether the output will be descrambled if the input is scrambled.	Scrambled - The output channel will remain scrambled even if the PE is authorized and can descramble the channel. Descrambled - Descrambles the output channel, and passes in-the-clear channels. The default is Descrambled.
Insert Null Packet	Select whether to insert null packets into the output to maintain output at a constant bit rate.	Yes or No

MOIP1

Menu Item	Description	Parameters
Name	This is the name assigned to the transport output for ease of reference.	20-character string
Rate Control	This is the DPM output rate control.	Auto - The output rate follows that set by the uplink. The output rate will be the same as the input rate (including all null packets). This means the output bit rate is determined automatically based on the input source symbol rate and FEC value. This setting is used when the signal source is RF. User - The output rate is specified as the Output Rate parameter. It is determined by the user setting regardless of the input source. Null packets are always inserted.
User Rate (Mbps)	This parameter controls the output rate when **Rate Control** is set to User. **Note:** Output data will be partially or completely lost if the user-selected bit rate is set to a value that is less than the actual signal bit rate.	0 to 206 Mbps

Menu Item	Description	Parameters
Output Mode	This selects the DPM output mode.	No Output - No MPEGoIP output will be generated. Passthrough - The output will be identical to the input. The output channel will not be modified. PE/PID remapping options, PSI regeneration and User Rate are not supported in this mode. Service Chans Only - Only service channels will be output. MAP Passthrough - The output will be identical to the input, except that it will be generated using the DPM and PID mapping settings. MAP Svc Chans Only - Only service channels will be output according to the DPM and PID mapping settings. Full DPM Control - The output will be generated according to the DPM setting.
Descramble Mode	This parameter selects whether the receiver should scramble the output even if it is authorized to receive the channel.	The default mode is Descrambled. Scrambled - Scrambles the output channel even if the PE is authorized and can descramble the channel. Descrambled - Descrambles the output channel, and passes in-the-clear channels.
Insert Null Packet	This parameter selects whether to insert null packets in the output stream. Null packets are always inserted if the **Rate Control** is set to User.	Yes or No
Enb	Selects whether to enable or disable the MPEGoIP output.	Yes or No
Instance Name	This is the DPM output instance name.	Up to 31 characters
MOIP	Selects the transport protocol to be used for the output stream.	RTP or UDP

Menu Item	Description	Parameters
Send SAP	This selects whether to send Session Announcement Protocol messages.	Yes or No
SAP ID	This is the SAP identifier (ID)/string.	Up to 49 characters
DestAddr	Enter the unicast (valid host IP only) or multicast destination IP address.	224.0.0.0 to 239.255.255.255
UDPPort	This selects the destination port number.	1 to 65535 **Note:** If you selected RTP for MOIP, you must select an even destination port number.
SrcPort	This selects the source UDP port number.	0 to 65535
TS/IP	This selects the maximum number of transport packets per IP packet.	1 to 7
Min IP/s	This selects the minimum number of IP packets per second.	0, 2 to 1000
PCR@IP Start	This selects whether to always transmit a new IP packet when a new Program Clock Reference (PCR) arrives.	Yes or No
SAP	This selects whether to use the configured SAP string as the channel name.	Yes or No
MGMT Port Mode, DATA Port Mode	This selects the Management and Data MPEGoIP modes. **Note:** If No Output was selected for MOIP1 Output Mode, updates to the port modes will have no affect.	No Output - Disables the MPEGoIP interface. Always Output - Always outputs data on the port. **Note:** You cannot select Always Output for both ports simultaneously.
SAP Multicast Address	This is the SAP destination IP address.	0 to 255 for each of the four fields in the format ###.###.###.###.
PCR Addition	This selects whether to add a PCR to the output stream.	Yes or No

TS Out - DPM

To view the DPM menu from the TS Out menu, press the RIGHT arrow key. The DPM menu provides access to functionality associated with Global and ASI outputs.

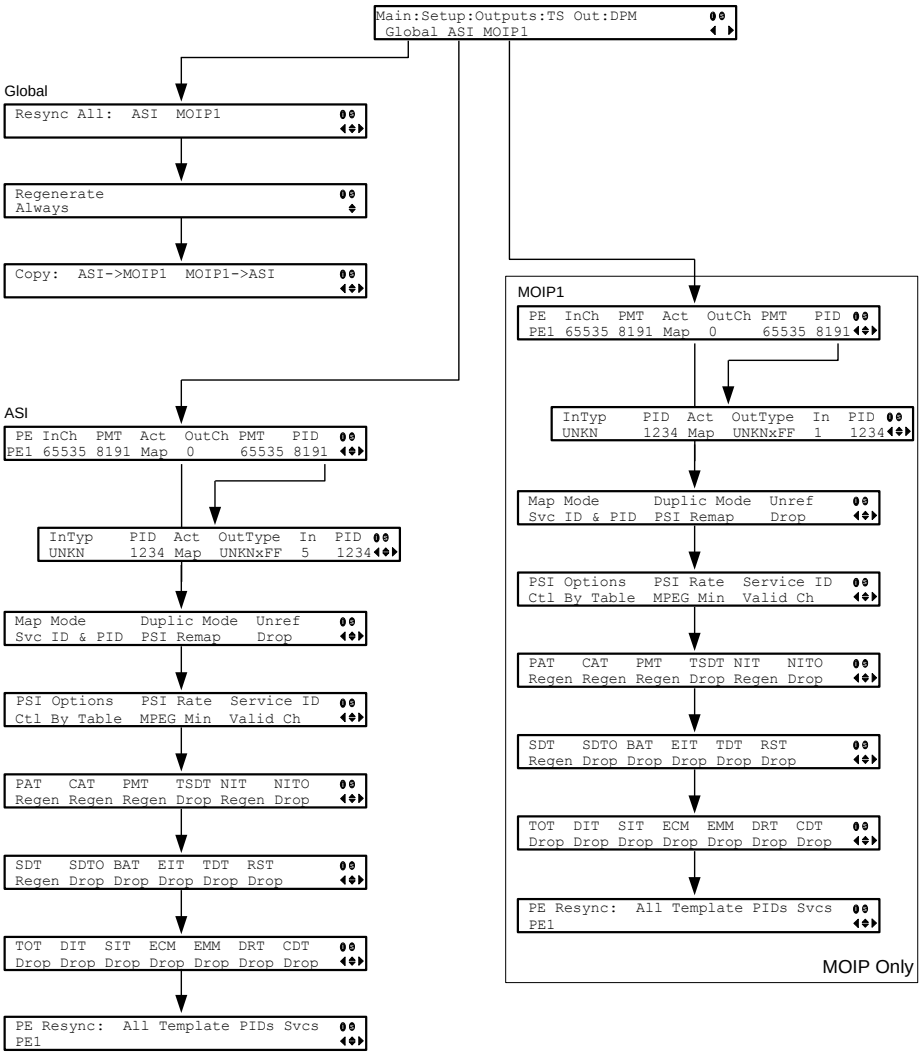
The DPM menu allows you to groom functionality on a program basis where individual service PID modifications are provided on a limited scale.

Use the digital program mapping features to:

- configure the transport output bit rate
- configure the output mode for a program entry
- configure the service and PID output settings in a program entry

Note: Any changes made to the ASI DPM values will automatically change the TS Output mode to Full DPM Control.

The DPM menu has the following structure:



DPM - Global

Menu Item	Description	Parameters
Resync All:	Select to resynchronize all DPM output with the PMT data for all program entries on the selected output.	ASI
Regenerate	Selects whether to regenerate the PSI tables in the output.	Always or As Needed Always - All tables are regenerated. As Needed - Only regenerate the tables if the content has changed.
Copy:	This copies all DPM data from either the ASI output to the MOIP1 output (MPEG over IP) or from the MOIP1 output to the ASI output depending on your selection.	ASI->MOIP1 or MOIP1->ASI

ASI/MOIP1

Menu Item	Description	Parameters
PE	Select the Program Entry to configure.	1 to 32
InCh	Displays the channel number to which the PE is tuned. This is read-only.	1 to 65535
PMT	Indicates the input PID value of the Program Map Table for the current channel. This is read-only.	2 to 8190

Menu Item	Description	Parameters
Act	Selects the action to perform on the current program entry. This setting controls the overall DPM behavior of the PE and will affect how the PID mapping operates.	Pass, Map, or Drop. The default is Pass. Pass - Output channel is the same as the input channel. The OutCh, and PMT settings are ignored. All PID map entries are ignored except for entries that explicitly drop a service. Map - The output channel is mapped to the OutCh and PMT settings. Only services which have entries in the PID map are available on the output. These services will appear in the PMT even if the stream is not present. Drop - The current channel is not sent to the output and its PMT is removed from the output. The OutCh, PMT, and PID map entries are ignored.
OutCh	If mapping the current PE (Act was set to Map), set the output channel number for the current program.	1 to 65535
PMT	If mapping the current PE (Act is set to Map), set the output PID of the PMT.	2 to 8190
PID	Press Select to view and configure the PID map. The PID map is used to map input services to output PIDs. For more information, see PID Map Menu.	
Map Mode	Select the DPM mapping mode for the current output.	Svc ID - The elementary PIDs are not changed. Channels are remapped by changing their PSI references. When this mode is selected, PID mapping in the PID Map menu is ignored. Svc ID & PID - Channels and the elementary service PIDs can be mapped using the PID Map menu.

Menu Item	Description	Parameters
Duplic Mode	Select how to handle duplicate programs. This setting is only used if the Map Mode menu is set to Svc ID & PID.	PSI Remap - Every input PID can be mapped to only one output PID. If PID mapping conflicts exist, DPM will use the Precedence Rule to decide which output PID to use. All PMTs using the input PID will be updated to reference the output PID specified by the winner. Pkt Copy - An input PID can be mapped to multiple output PIDs. The PID will be duplicated as many times as needed (up to a certain hardware limitation). **Note:** This may increase the output bandwidth of the stream. Pkt Copy is recommended for most applications.
Unref	Select the action to use for unreferenced content. Unreferenced content is the remainder of the transport stream that is not filtered by the program entries.	Drop or Pass Drop - All unreferenced content is dropped. Pass - All unreferenced content is passed to the output unchanged.
PSI Options	Select the action to perform on the PSI tables for the output stream. **Note:** The table menus (PAT, CAT, PMT, TSDT, NIT, NITO, SDT, SDTO, BAT, EIT, TDT, RST, TOT, DIT, SIT, ECM, EMM, DRT, CDT) will only appear if you select Ctl by Table.	Pass All - Transmits the incoming PSI Tables as is; does not modify the content and rate. The PSI Rate and table settings are ignored. Drop All - Does not transmit any PSI Tables. The PSI Rate and table settings are ignored. Ctl by Table - Configure the table specific output mode for each table.
PSI Rate	If the PSI Options was set to Ctrl by Table, select the regeneration rate for those PSI tables being regenerated.	Auto - Matches the generated PSI tables' output rate to the incoming rate. MPEG Min - Transmits the generated PSI tables on the longest intervals that are allowed by MPEG standard. SA Std - Transmits the generated PSI tables based on PowerVu standard intervals.

Menu Item	Description	Parameters
Service ID	Select whether the receiver should always generate PSI tables for the Mapped PE even if the selected input channel is not available, or for only valid service channels/IDs.	Valid Ch - Only transmits the PSI tables for the mapped program if the program exists on the input stream. All Ch - Transmits the PSI tables for the mapped program even if the program does not exist in the input stream. All Ch is only valid if the PAT, NIT, SDT and PMT are set to Regenerate.
PAT, CAT, PMT, TSDT, NIT, NITO, SDT, SDTO, BAT, EIT, TDT, RST, TOT, DIT, SIT, ECM, EMM, DRT, CDT	Selects the tables which will be passed, dropped, regenerated, or passed with rate control (PwRC) from the output. For more information, see PSI Table Settings. **Note:** The table settings are only available if you selected Ctl by Table in the PSI Options menu.	
PE Resync: All, Template, PIDs, Svcs	Each PE output can be synchronized to its input according to one of four output modes. For information on synchronizing output services, see Synchronizing Output Services.	Svcs - Map the input to the output based on the services only. PIDS - Map the input to the output based on the PIDs only. All - Map the input to the output based on the PIDs and services Template - Map the input to a fixed template output.
PAT/PMT Offset	This is a customer-specific mode, only to be used if directed by Cisco. For more information, contact Cisco customer support.	
NIT Offset	This is a customer-specific mode, only to be used if directed by Cisco. For more information, contact Cisco customer support.	

PID Map Menu

This menu allows the PID Map to be configured. The PID map is used to map input services to output PIDs.

If the PE action is Pass, or PE action is Map and Map Mode is Svc ID, only entries which drop a service are applied and all other services are passed through. If the PE action is Map and Map Mode is Svc ID & PID, all entries are applied. Any services not mapped by an entry will be dropped.

Press up and down to scroll through the PID map entries. Press **ADV** to insert or delete entries from the PID map. After inserting an entry, specify the service using OutType and In, and set the desired Action. If the action is Map, select the output PID value as well. Then press **APPLY** and save the settings to see the selected input service that will follow that mapping.

Menu Item	Description	Parameters
InTyp	Displays the input service that will be mapped by the current entry. This value is read-only and for reference purposes.	
PID	Displays the input PID that will be mapped by the current entry. This value is read-only and for reference purposes.	1 to 8190
Act	Select the action to perform on the current PID. The Drop action is always performed, but the Map option is only applied if the PE action is Map and the Map Mode is Svc ID & PID.	Map - The service selected by the OutType and Instance will be mapped to the specified PID. This is only applied if the PE action is Map and the Map Mode is Svc ID & PID. Drop - The service selected by the OutType and Instance will be removed from the PMT and the output stream.
OutType	Select the service to configure. If an input service matches this type and instance specified by In, then the Action will be applied.	UNKN, ETV, CDT, LSDT, DATA, TTX, MPE, DPI, VBI, SUBT, AUD, VID, PCR or INVL
In	Select the instance of the service specified by OutType to configure. If an input service matches this type and instance, then the Action will be applied.	1 to 64

Menu Item	Description	Parameters
PID	If mapping this PID (Act is set to Map), select the output PID number.	1 to 8190

PSI Table Settings

Note: The table settings are only available if you selected Ctl by Table in the PSI Options menu.

Setting	Mode Options	Description	Default
PAT	Pass, Drop, Regen	Program Association Table	Pass
CAT	Pass, Drop, Regen	Conditional Access Table	Pass
PMT	Pass, Drop, Regen	Program Map Table	Pass
TSDT	Pass, Drop	Transport Stream Description Table	Pass
NIT	Pass, Drop, Regen, PwRC	Network Information Table	Pass
NITO	Pass, Drop, PwRC	Network Information Table - Other	Pass
SDT	Pass, Drop, Regen, PwRC	Service Description Table	Pass
SDTO	Pass, Drop, PwRC	Service Description Table - Other	Pass
BAT	Pass, Drop, PwRC	Bouquet Association Table	Pass
EIT	Pass, Drop	Event Information Table	Pass
TDT	Pass, Drop	Time and Date Table	Pass
RST	Pass, Drop	Running Status Table	Pass
TOT	Pass, Drop	Time Offset Table	Pass
DIT	Pass, Drop	Discontinuity Information Table	Pass
SIT	Pass, Drop	Selection Information Table	Pass
ECM	Pass, Drop	Entitlement Control Message	Pass
EMM	Pass, Drop	Entitlement Management Message	Pass

Setting	Mode Options	Description	Default
DRT	Pass, Drop	Disaster Recovery Table	Pass
CDT	Pass, Drop	Code Download Table	Pass

Note: The CDT is different from the other tables listed because the CDT is referred to within the PMT, rather than outside the PMT. Select Pass to permit the output of CDTs following the configured DPM PID map configuration and all other DPM constraints. If a DPM PID map has not been configured for the CDT PID and the PE Act is set to Map, the CDT will still not output. Select Drop to override the DPM PID map configuration for CDT PIDs and to always drop all CDTs.

Setting Up Digital Program Mapping (DPM)

1. Verify that you are receiving a valid signal and that you have set up the channels that you want to pass, drop or map.
2. Go to the Setup: Outputs, TS Out: DPM: Global menu and select **Resync All** for the selected ASI output. This copies the input services PIDs to the remapped output service PIDs.
3. Go to Setup: Outputs: TS Out: DPM: ASI, and select the PE containing the channel you want to configure.
4. Set the **Act** for the selected PMT to either **Pass**, **Drop**, or **Map** depending on the action desired.

   A program can be set to one of three output modes, either Drop, Pass or Map.

LCD Setting	Description
Drop	Removes the service and its associated PMT reference from the transport output.
Pass	Permits the source content and PMT reference to appear in the transport output with the same references.
Map	Provides the flexibility to define all the outgoing PID numbers for the PE, including those not currently on transmission.

5. Use the **RIGHT** arrow key to move to the right and select PID to display the detailed menu level.
6. Configure the input to output channel mapping. Video and PCR can be output on the same PID or different PIDs. If output on the same PID, they will appear identical to the input.

   Note: If the parameters cannot be saved, the problem may be that the incorrect Map Mode has been selected. Ensure that Svc ID & PID is selected when remapping PIDs, otherwise a message such as “Bad configuration data” will be displayed and you will need to change the parameters to obtain the correct output.

7 Go to Setup: Outputs, TS Out: ASI, and set the **Output Mode** to **Full DPM Control**. Also, if necessary set the Descramble Mode according to whether the program is to be Scrambled or Descrambled for downstream viewing/monitoring.

8 On the same menu, set the following parameters:

Parameter	**Description**
Map Mode	Svc ID & PID
Duplic Mode	Pkt Copy
Unref	Drop
PSI Options	Ctl By Table
PSI Rate	Any
Svc ID	Any

9 Set the table parameters as follows:

Parameter	**Description**
PAT	Regen
CAT	Regen
PMT	Regen
TSDT	Drop
NIT	Regen or Drop
NITO	Drop
SDT	Regen
SDTO	Drop
BAT	Drop
EIT	Drop
TDT	Pass
RST	Pass
TOT	Pass
DIT	Pass
SIT	Pass
ECM	Drop
EMM	Drop
DRT	Drop
CDT	Drop

10 Press **MENU** three times to exit the TS Out menu and save the data. If the changes cannot be saved/made, a message will be displayed indicating "Bad configuration data". The following options are available: Abandon, Exit or Return. Select Return to re-enter the parameter.

Note: When remapping an input program channel to an output channel, ensure that the PIDs are mapped to different PIDs to avoid PID collisions.

Synchronizing Output Services

To synchronize the output to the input Services Only:

This operation synchronizes the inputs to the outputs according to the service assignments only. This is useful when you already have PID assignments set for the services but want to ensure that the services are mapped correctly.

1 On the DPM menu, map the output services as desired.

2 Select PE Resync: Svcs. The receiver will synchronize the PE output according to the available input services only, and ignore the input to output service PID mapping.

To synchronize the output to the input PIDs only:

This operation synchronizes the inputs to the outputs according to the PID assignments only. This is useful when you have already have the services set up but want to synchronize to the incoming PIDs.

1 On the DPM menu, map the output services as desired.

2 Select PE Resync: PIDs. The receiver will synchronize the PE output according to the input PIDs only, and ignore the service assignment categories/names.

To synchronize the output to All (Services and PIDs):

This operation synchronizes the inputs to the outputs of the current PMT according to the service assignments and then the PID assignments. This is similar to a sample and hold function.

1 On the Detailed Program Mapping Active menu, map the outputs services as desired.

2 Select PE Resync: All. The receiver will synchronize the PE output according to the services and then the PIDs assigned to each service.

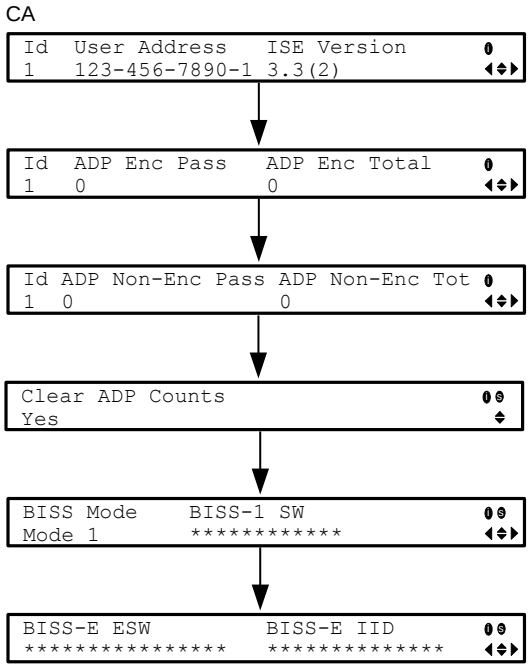
To synchronize the output to a Template:

Using a template allows you to preset the input to output mapping of a PE according to the preset template. This is helpful in pre-configuring any number of PEs for future use.

Setup Menu: CA

To view the CA menu from the Main menu, press the **RIGHT** arrow key once and then the **SELECT** key to reach the Setup menu. Then press the **RIGHT** arrow key six times and the **SELECT** key to view the CA menu.

The CA menu provides information about the ISE, the status of the ADP transmission, and allows you to set the BISS mode and session words available from your service provider. The CA menu has the following structure:



Menu Item	Description	Parameters
Id	Select the ISE to configure.	1 to 32
User Address	Indicates the ISE User Address.	11 digit address in the following format: ###-###-####-#
ISE Version	Indicates the ISE version number.	7 characters
ADP Enc Pass	Indicates the number of encrypted Addressable Data Packets successfully processed. Ideally, the ADP Enc Pass and ADP Enc Total numbers should be identical.	

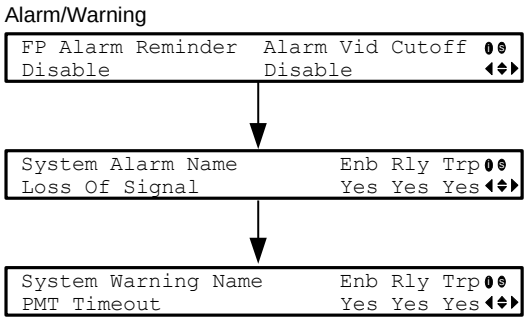
Menu Item	Description	Parameters
ADP Enc Total	Indicates the total number of encrypted Addressable Data Packets received. Ideally, the ADP Enc Pass and ADP Enc Total numbers should be identical.	
ADP Non-Enc Pass	Indicates the number of non-encrypted Addressable Data Packets successfully processed. Ideally, the ADP Non-Enc Pass and ADP Non-Enc Total numbers should be identical.	
ADP Non-Enc Total	Indicates the total number of non-encrypted Addressable Data Packets received. Ideally, the ADP Non-Enc Pass and ADP Non-Enc Total numbers should be identical.	
Clear ADP Counts	Select to clear the Addressable Data Packet counters: ADP Enc Pass, ADP Enc Total, ADP Non- Enc Pass and ADP Non-Enc Total. These values are also reset whenever the receiver is turned on, reset or power-cycled.	
BISS Mode	Sets the Basic Interoperable Scrambling System (BISS) mode for the receiver. All channels assigned to a PE identified as BISS CA-controlled in the PMT will be decrypted.	Mode 1 or Mode E
BISS-1 SW	If BISS Mode is Mode 1, enter the session word.	12-character password. Once entered, it cannot be viewed and it is only displayed as asterisks (*). Contact your program provider for the session word.
BISS-E ESW	If BISS Mode is Mode E, enter the encrypted session word.	16-character password. Once entered, it cannot be viewed and it is only displayed as asterisks (*). Contact your program provider for the session word.

Menu Item	Description	Parameters
BISS-E IID	If BISS Mode is Mode E, enter the injected ID.	14-character password. Once entered, it cannot be viewed and it is only displayed as asterisks (*). Contact your program provider for the session word.

Setup Menu: Alarm/Warning

To view the Alarm/Warning menu from the Main menu, press the **RIGHT** arrow key once and then the **SELECT** key to reach the Setup menu. Then press the **RIGHT** arrow key seven times and the **SELECT** key to view the Alarm/Warning menu.

The Alarm/Warning menu allows to you to browse the active alarms and warnings, and set whether the output will be disabled in the event of an alarm. This menu has the following structure:



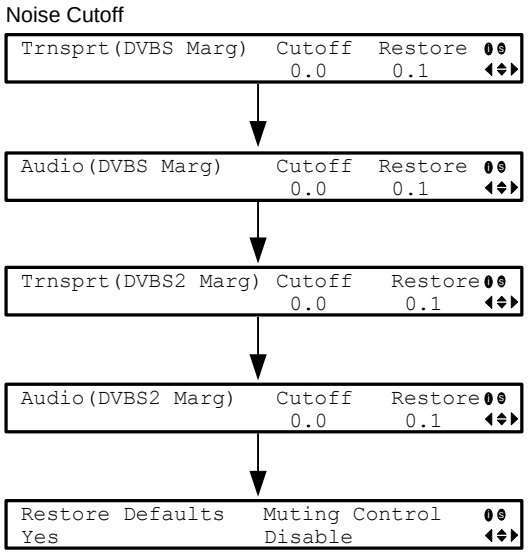
Menu Item	Description	Parameters
FP Alarm Reminder	Select whether to display alarms and warnings on the front panel. The alarm indicator will intermittently flash in the lower line, if enabled.	Enable or Disable

Menu Item	Description	Parameters
Alarm Vid Cutoff	Select whether the video output is cut off if any enabled alarm is active on the receiver. When video is cut off, there will be no horizontal or vertical synchronization on the output. This is useful for downstream redundancy switching by detecting a loss of video signal. **Note:** This function also exists under Setup: Services: Video.	Enable or Disable The default is Disable.
System Alarm/Warning Name	Displays the alarm or warning to configure.	
Enb	Select whether the current alarm is enabled or disabled. If the alarm is disabled, the Rly and Trp settings are ignored	Yes or No
Rly	If the current alarm or warning is enabled (Enb is set to Yes), select whether it will trigger the rear panel relay when the alarm is set or cleared.	Yes or No **Note:** No is a read only value that indicates the setting is Yes, but is currently being suppressed because the alarm or warning is disabled (Enb is set to No).
Trp	If the current alarm or warning is enabled (Enb is set to Yes), select whether it will send SNMP trap messages when the alarm is set or cleared.	Yes or No **Note:** No is a read only value that indicates the setting is Yes, but is currently being suppressed because the alarm or warning is disabled (Enb is set to No).

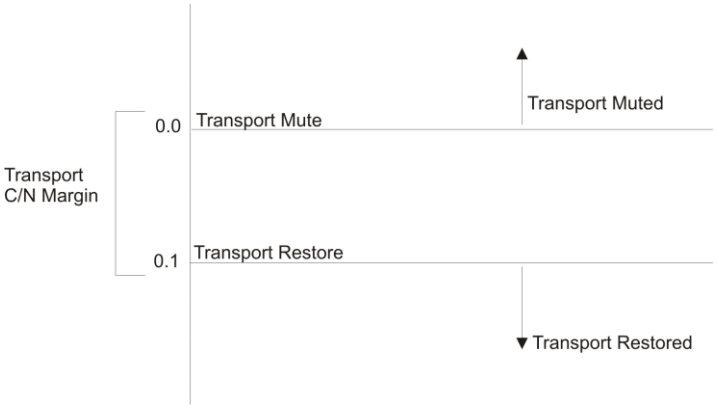
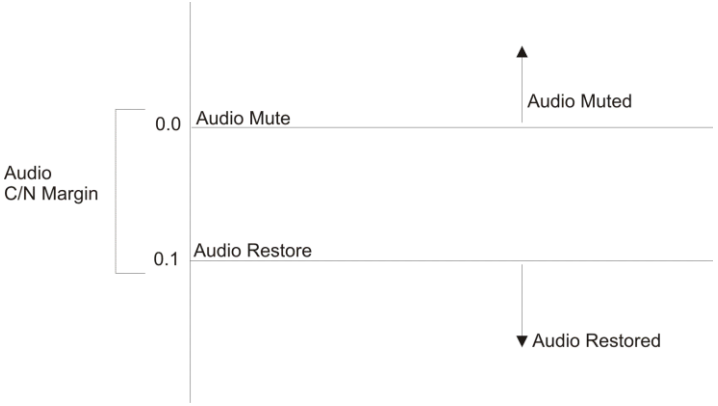
Setup Menu: Noise Cutoffs

To view the Noise Cutoffs menu from the Main menu, press the **RIGHT** arrow key once and then the **SELECT** key to reach the Setup menu. Then press the RIGHT arrow key eight times and the **SELECT** key to view the Noise Cutoffs menu.

The Noise Cutoffs menu allows you to set the muting thresholds for both audio and video in the event of a noisy signal. This menu has the following structure:



Menu Item	Description	Parameters
Trnsprt(DVBS Marg) Cutoff Trnsprt(DVBS2 Marg) Cutoff	Sets the DVB-S and DVB-S2 Carrier to Noise margins, in dB, below the transport outputs that will be muted. The receiver uses these thresholds to determine when to mute the transport in the event of a noisy signal, poor, or loss of signal condition.	-30.0 to 30.0 This setting must be below the respective Restore value. The default is 0.0. **Note:** Muting Control must be set to Enable for these settings to be active.
Trnsprt(DVBS Marg) Restore Trnsprt(DVBS2 Marg) Restore	Sets the DVB-S and DVB-S2 Carrier to Noise margins, in dB, above the transport outputs that will be muted. The receiver uses these thresholds to determine when to restore the transport after it has been muted.	-30.0 to 30.0 This setting must be above the respective Cutoff value. The default is 0.1. **Note:** Muting Control must be set to Enable for these settings to be active.

Menu Item	Description	Parameters
	The following displays the Transport Default C/N Margin Relationship  	
Audio(DVBS Marg) Cutoff Audio(DVBS2 Marg) Cutoff	Sets the DVB-S and DVB-S2 Carrier to Noise margins, in dB, below the audio outputs that will be muted. The receiver uses these thresholds to determine when to mute the audio in the event of a noisy, poor, or loss of signal condition.	-30.0 to 30.0 This setting must be below the respective Restore value. The default is 0.0. **Note:** Muting Control must be set to Enable for these settings to be active.
Audio(DVBS Marg) Restore Audio(DVBS2 Marg) Restore	Sets the DVB-S and DVB-S2 Carrier to Noise margins, in dB, above the audio outputs that will be restored. The receiver uses these thresholds to determine when to restore the audio after it has been muted.	-30.0 to 30.0 This setting must be below the respective Cutoff value. The default is 0.1. **Note:** Muting Control must be set to Enable for these settings to be active.
	The following displays the Audio Default C/N Margin Relationship  	

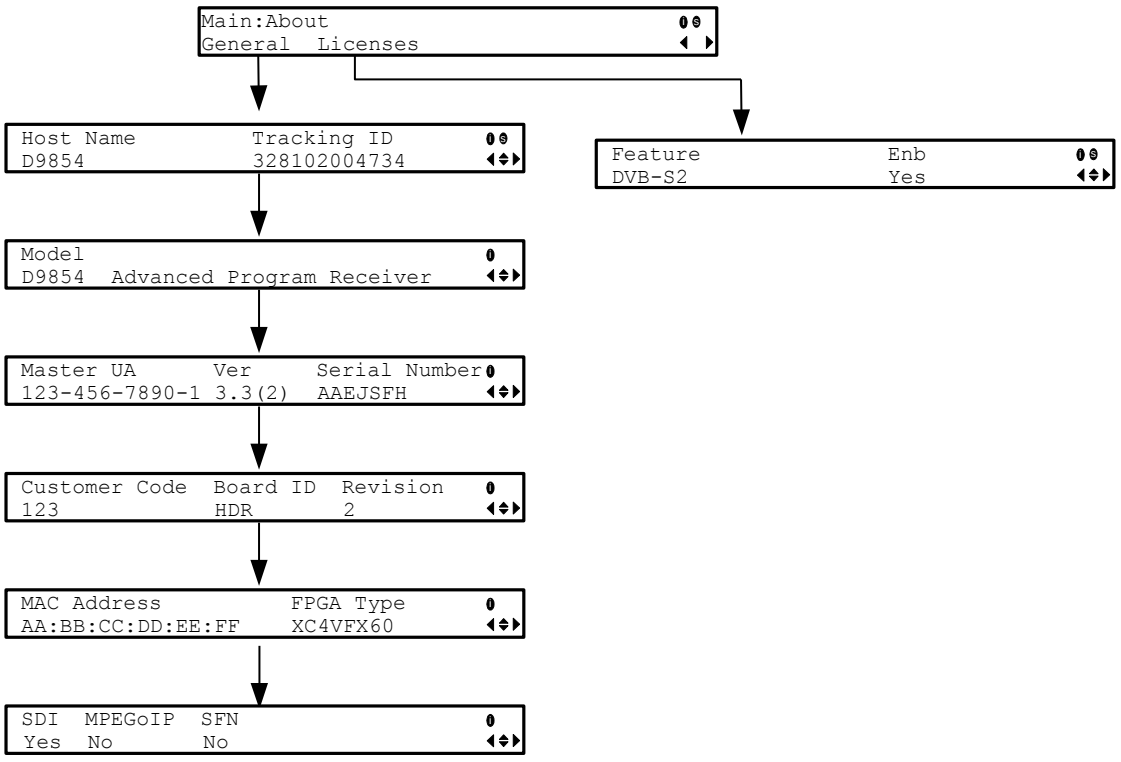
Menu Item	Description	Parameters
Restore Defaults	Select to restore the default muting thresholds.	
Muting Control	Select whether to enable or disable muting cutoffs. If disabled, all the other settings are ignored.	Enable or Disable. The default is Enable.

About Menu

To view the About menu from the Main menu press the **RIGHT** arrow key two times and then the **SELECT** key.

The About menu provides basic hardware information that is useful when requesting customer support from Cisco.

Each parameter is described below. The About menu has the following structure:



General

Menu Item	Description
Host Name	Sets the host name of the current unit. It is a user configurable name that appears on the Web Interface title to identify the receiver.
Tracking ID	Displays the unique Tracking ID number that identifies the product version. This is read-only.
Model	Indicates the model number and name of the receiver. This is read-only.
Master UA	Indicates the Master User Address (UA), which is required to request program authorization from the uplink. This is read-only.
Ver	Indicates the version number of the ISE.

Menu Item	Description
Serial Number	Indicates the unique device serial number.
Customer Code	Indicates the unique Customer Code assigned to an organization by Cisco.
Board ID	Indicates the hardware board design identification.
Revision	Indicates the revision number of the board design.
MAC Address	Indicates the MAC address of the Control Port Ethernet interface.
FPGA Type	Indicates the FPGA type and number information.
SDI	Indicates whether the receiver is equipped with an SDI output.
MPEGoIP	Indicates whether the receiver is equipped with an MPEG over IP output.
SFN	Indicates whether the receiver is configured as a SFN (Single Frequency Network) unit.

Licenses

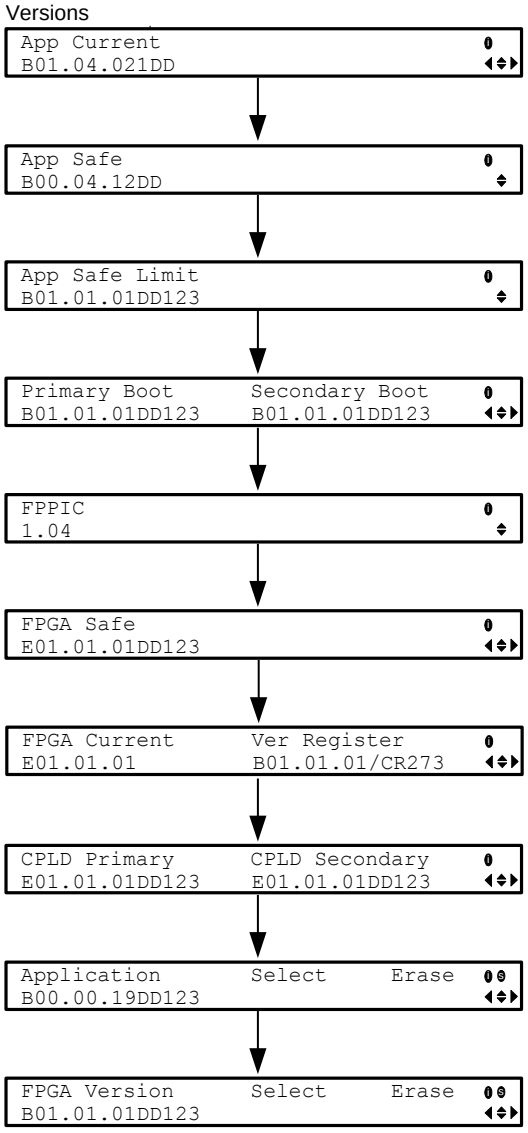
Menu Item	Description	Parameters
Feature	Displays a list of software licenses for the D9854 Advanced Program Receiver. Press up and down to scroll through the list of features.	HD Decode, H.264 Decode, DVB-S2, or MPEGoIP Out
Enb	Indicates whether the selected software feature is licensed and enabled. **Note:** All software licenses are enabled for this release (temporarily). Any of these required licenses will need to be purchased from Cisco in subsequent software releases.	Yes or No

Versions Menu

To view the Versions menu from the Main menu press the **RIGHT** arrow key three times and then the **SELECT** key.

The Versions menu provides basic software information that is useful when requesting customer support from Cisco.

The menu has the following structure:



Menu Item	Description
App Current	Indicates the version of the current application.

Menu Item	Description
App Safe	Indicates the version of the factory loaded safe application.
App Safe Limit	Indicates the version of the oldest application that can be installed on the current unit. If this value is zero, the oldest application limit is the App Safe version. If this is greater than zero, the shown value or older and the App Safe version is the limit. Older applications will not be installed.
Primary Boot/Secondary Boot	Indicates the versions of the primary and secondary processors' boot code.
FPPIC	Indicates the version of the front panel PIC microcontroller.
FPGA Safe	Indicates the version of the factory loaded safe Field Programmable Gate Array (FPGA) code.
FPGA Current	Indicates the version of the current Field Programmable Gate Array (FPGA) code.
Ver Register	Indicates the version of FPGA code read from the FPGA.
CPLD Primary, CPLD Secondary	Indicates the versions of the current primary and secondary Complex Programmable Logic Device (CPLD).
Application, Select, Erase	Application - Select between all versions of the application loaded on the current unit. Select - Select and then scroll to Yes to reboot the unit and load the selected application. You will be prompted to continue or abort this operation. **Note:** Selecting an application will cause the unit to reboot and interrupt service. Erase - Select to erase the selected application. You will be prompted continue or abort this operation. You cannot erase the safe application or the current application. While an application is being erased, the busy indicator will appear. You cannot earse another application until it is complete.

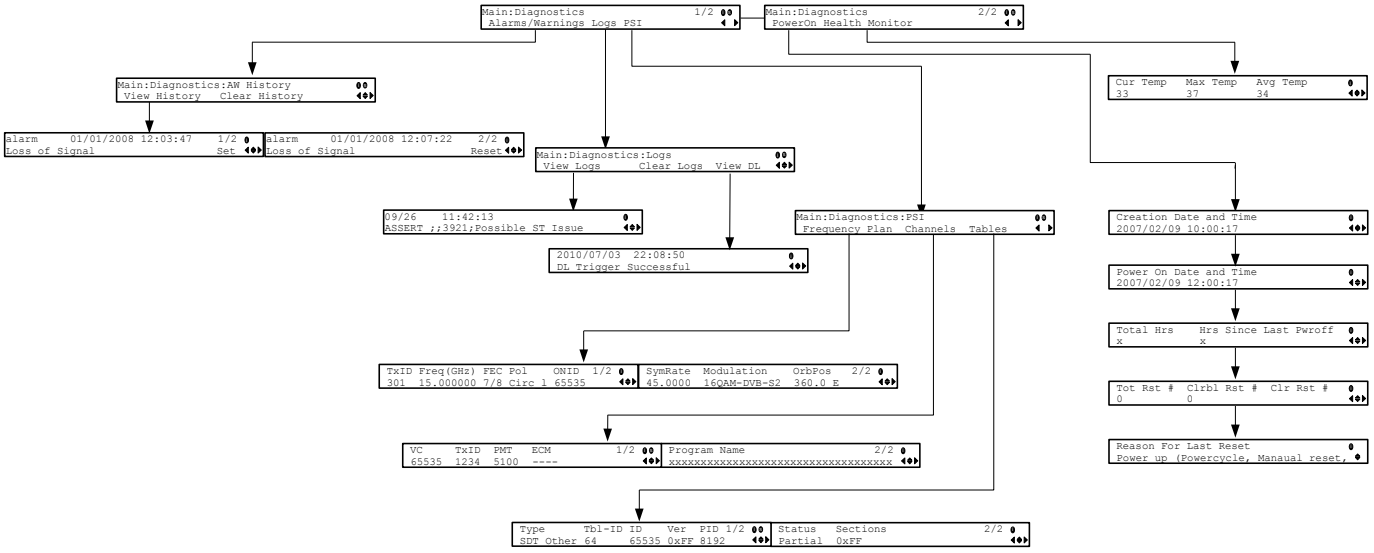
Menu Item	Description
FPGA Version, Select, Erase	FPGA Version - Select between all versions of the FPGA code loaded on the current unit. Select - Select and then scroll to Yes to reboot the unit and load the selected FPGA code. You will be prompted to continue or abort this operation. **Note:** Selecting an FPGA code will cause the unit to reboot and interrupt service. Erase - Select to erase the selected FPGA code. You will be prompted continue or abort this operation. You cannot erase the safe FPGA code or the current FPGA code. While an FPGA code is being erased, the busy indicator will appear. You cannot earse another FPGA code until it is complete.

Diagnostics Menu

To view the Diagnostics menus from the Main menu, press the **RIGHT** arrow key four times and then the **SELECT** key.

For instructions on how to select and store settings, see ***About the Front Panel*** (on page 38).

The Diagnostics menu has the following structure:



Alarms/Warnings

Menu Item	Description
View History	Select to view the system event messages. Press the **UP** and **DOWN** arrow keys to scroll through the list of alarms and warnings. Press the **LEFT** and **RIGHT** arrow keys to view the set and reset times. Press the **INFO** key to view the detailed message.
Clear History	Select to clear any existing history information.

Logs

Menu Item	Description
View Logs	Select to view the system log messages. Press the **UP** and **DOWN** arrow keys to scroll through the list of log messages. Press the **INFO** key and then **UP** and **DOWN** arrow keys to view the complete message text.
Clear Logs	Select to clear any existing log history information.

Menu Item	Description
View DL	Select to view the system download history messages. Press the **UP** and **DOWN** arrow keys to scroll through the list of downloaded messages. Press the **INFO** key and then **UP** and **DOWN** arrow keys to view the complete message text.

PSI - Frequency Plan

This is the Frequency Plan sub-menu. You cannot make any changes here, but you can view the available frequency plans stored in the receiver. Press the UP and DOWN arrow keys to scroll through the list of available transports.

Menu Item	Description	Parameters
TxID	Transport ID	
Freq(GHz)	Downlink Frequency (GHz)	0.0 to 15.0 GHz
FEC	Forward Error Correction inner code rate	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 7/8, 8/9, or 9/10
Pol	Polarity of the received signal (H, V, or Off)	Horiz (Horizontal), Vert (Vertical), Circ_l (Left Circular), or Circ_r (Right Circular).
ONID	Original Network ID	
SymRate	Symbol Rate, in Mbps	
Modulation	Modulation of the signal	QPSK DVB-S, QPSK DVB-S2, 8PSK DVB-S2 or 16QAM DVB-S2
OrbPos	Orbital Position of the satellite (in degrees)	East or West

PSI - Channels

This is the Virtual Channel sub-menu. You cannot make any changes here, but you can view the available channels and their settings. Press the **UP** and **DOWN** arrow keys to scroll through the list of channels.

Menu Item	Description
VC	Virtual channel number.
TxID	Identification number of the transport on which the channel is available. For more information on the transport streams, see ***PSI - Frequency Plan*** (on page 124).
PMT	PID of the channel's Program Map Table. It is displayed as ---- if unavailable.

EMC	PID of the channel's Entitlement Control Message stream. It is displayed as ---- if unavailable or not scrambled.
Program Name	Name of the channel.

PSI - Tables

This is the Tables received sub-menu. You cannot make any changes here, but you can view the PSI tables received and their settings. Press the **UP** and **DOWN** arrow keys to scroll through the list of tables.

Menu Item	Description	Parameters
Type	The MPEG table acronym.	PAT, CAT, PMT, TSDT, NIT, NIT Other, SDT, SDT Other, BAT, AEIT P/F, OEIT P/F, TDT, RST, ST, TOT, DIT, SIT, ECM Odd, ECM Even, EMM, MPE, DPI, DRT, CDT, MCT, MIT, MAT, ECT, or Invalid Table ID
Tbl-ID	Unique Table ID.	
ID	MPEG/DVB Table ID.	
Ver	Table Version number.	
PID	Value of the PID on which the table is present.	
Status	Reception status of the table.	None, Partial, Full, Update, Timeout, or Lost
Sections	Number of sections in the table.	

Power On

Menu Item	Description
Creation Date and Time	Displays the date and time the current unit was manufactured.
Power On Date and Time	Displays the date and time the current unit was last powered up, in relation to the current local time.
Total Hrs	Displays the total number of hours the current unit has been running since being manufactured.
Hrs Since Last Pwroff	Displays the number of hours the current unit has been running since the last power up.

Menu Item	Description
Tot Rst #,	Displays the total numbers of times the current unit has been reset since it was manufactured.
Clrbl Rst #	Displays the number of times the unit has been reset since the clearable reset counter was last cleared.
Clr Rst #	Select this option to clear/reset the Clrbl Rst # counter to 0.
Reason For Last Reset	Displays the reason for the last reset.

Health Monitor

Menu Item	Description	Parameters
Cur Temp, Max Temp, Avg Temp	Displays the current (Cur Temp), maximum (Max Temp) and the average (Avg Temp) operating temperature.	Degrees Celsius

5

Web GUI Setup and Monitoring

Introduction

This chapter describes how to set up the D9854 Advanced Program Receiver using the web GUI.

In This Chapter

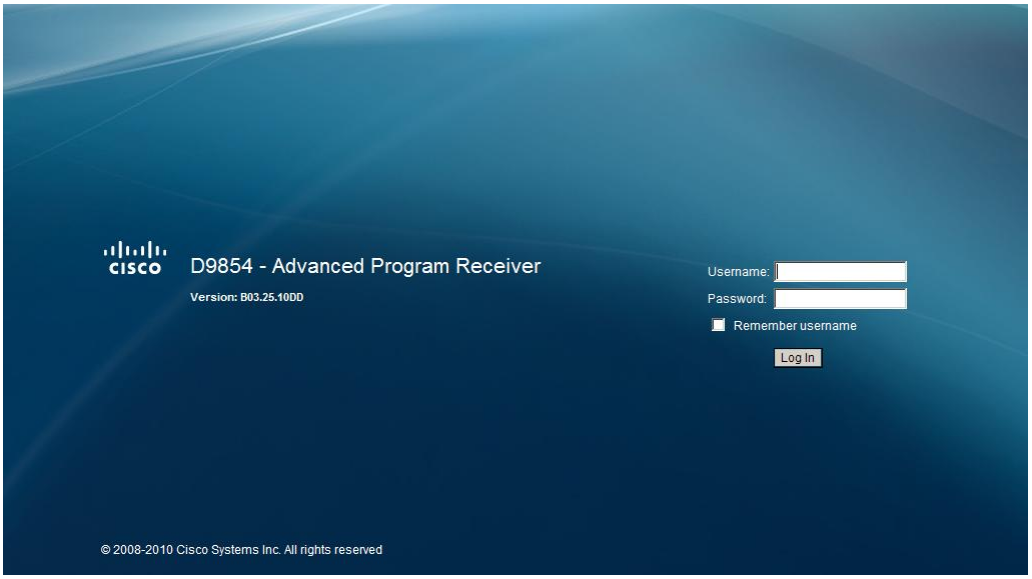
- Logging On to the Web Interface 128
- D9854 Summary Overview 129
- D9854 Menus 131
- D9854 Web GUI Environment 133
- Setting up Input Information 134
- Setting up Audio and Video Information 158
- Configuring Transport Stream Information 173
- Configuring System Settings 191
- Viewing Support Information 216

Logging On to the Web Interface

1 Open a web browser.

Note: The supported web browsers are: Internet Explorer 7.0, Internet Explorer 8.0, Firefox 3.5, and Firefox 3.6.

2 Type the IP address of the D9854 Advanced Program Receiver in the Address bar and press **Enter**.



3 Type the **Username** and **Password**.

Note: The username and password are case-sensitive. The default username is **admin** and the default password is **localadmin**. If you have forgotten your username and password you can reset them from the front panel menu of the D9854 Advanced Program Receiver. For more information, see ***Resetting the Login Credentials*** (on page 34).

Important: The password and user name will be remembered for the whole of the web session. Close the web browser if you want to prevent others from accessing the settings of the D9854 Advanced Program Receiver.

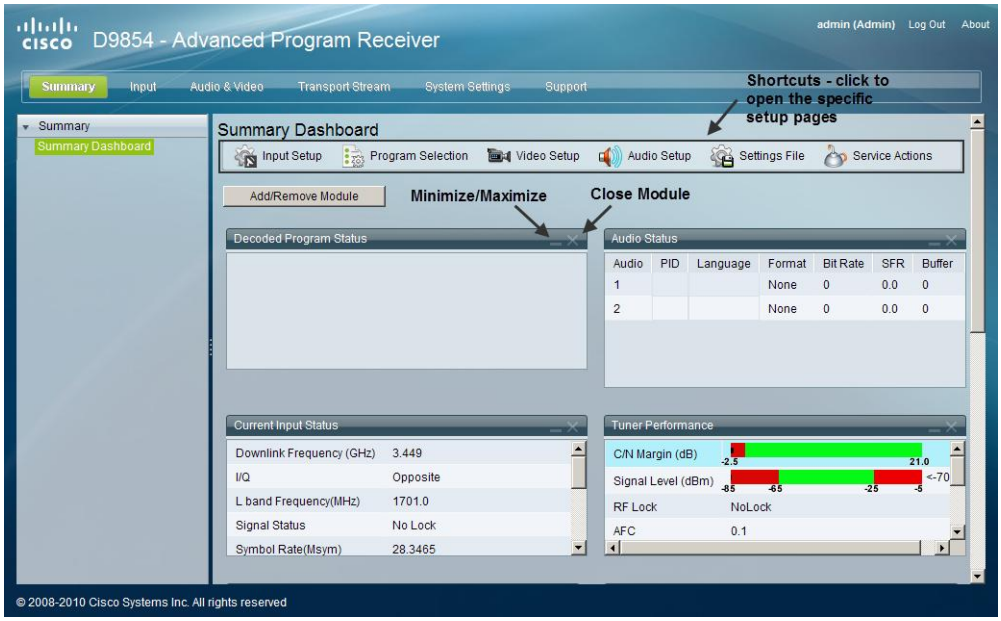
If your session expires, you must refresh the browser and log back in.

4 Click **Log in**.

Note: If you select **Remember username**, the user name will be remembered the next time you log into the web GUI.

D9854 Summary Overview

From the user interface of the D9854, click **Summary > Summary Dashboard**. The Summary Dashboard page is displayed.

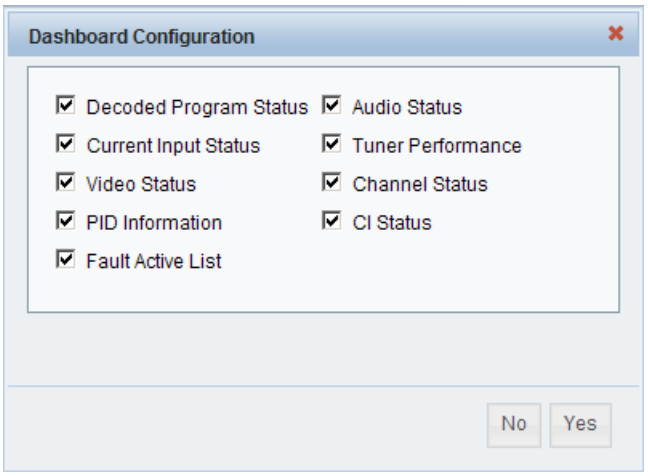


The Summary Dashboard page displays the main settings of the D9854 Advanced Program Receiver.

The shortcuts above the modules in the Summary Dashboard page are shortcuts to the various setup pages. For example, click **Video Setup** to open the Video Setup page.

You can customize the Summary Dashboard by temporarily minimizing or removing the modules displayed. Each module has a maximize and minimize button, allowing you to view or hide various modules. The default view is displayed when you refresh the Summary Dashboard page.

You can also customize the Dashboard by clicking on **Add/Remove Module**. The Dashboard Configuration window is displayed.



The following table describes the all the available modules:

Module	Description
Decoded Program Status	Displays channel and service information.
Audio Status	Displays the current audio status information, such as the audio format and sampling frequency.
Current Input Status	Displays the current RF Tuning Status information, including the downlink frequency and signal status.
Tuner Performance	Displays the satellite dish status, such as the C/N Margin and Signal Level.
Video Status	Displays the current video information.
Channel Status	Displays the channel status information, such as the type of CA used and whether the receiver is authorized to receive the signal.
PID Information	Displays the PIDs associated with the channels.
CI Status	Displays the CAM card information.
Fault Active List	Displays the currently active alarms and warnings.

D9854 Menus

The D9854 web GUI has menus at the top of the page.

The functions for the menus are as follows:

- Summary

  From this menu, you can obtain an overview of the D9854 operation.

- Input

  From this menu, you can:

  - set up RF and ASI inputs,
  - configure muting thresholds,
  - view input status,
  - configure channels,
  - configure CI (Common Interface) settings,
  - view PSI, Frequency, and Channel tables.

- Audio & Video

  From this menu, you can:

  - configure video settings,
  - set up closed caption and subtitles,
  - configure audio settings,
  - view current audio status,
  - set the cueing parameters.

- Transport Stream

  From this menu, you can:

  - configure ASI and MPEGoIP outputs,
  - configure receiver settings.

- System Settings

  From this menu, you can:

- view alarm and warning status information
- configure ethernet ports,
- set date and time formats,
- configure lock levels.

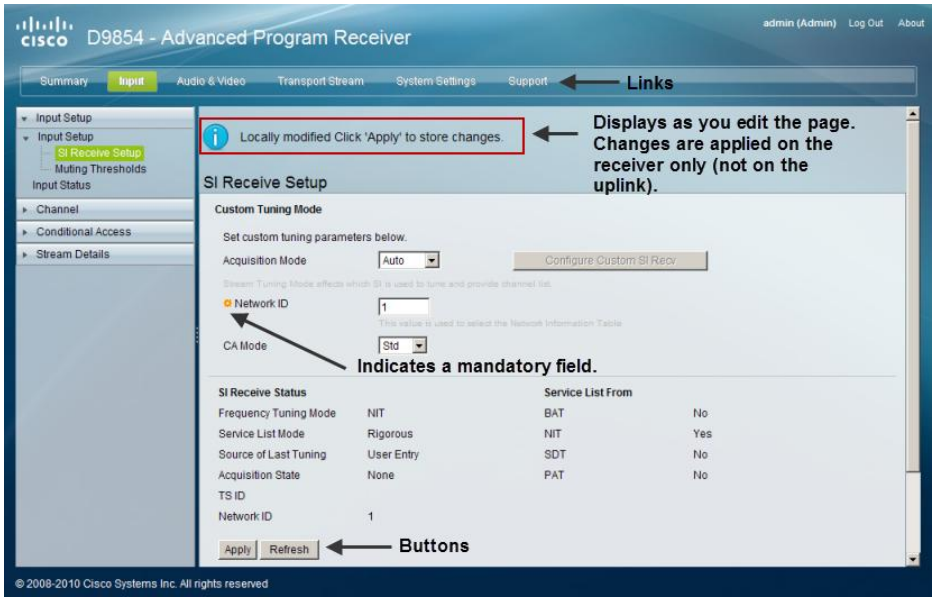
- Support

  From this menu, you can:

  - view logs,
  - view contact information,
  - view and upgrade software version.

D9854 Web GUI Environment

The following is an example of a D9854 Web GUI page:



Window Buttons

The GUI of the D9854 has the following general buttons:

Button	Description
Apply	Saves and applies the settings to the receiver.
Refresh	Reads existing data from the D9854. If edits were made in a setup page, then unsaved changes are discarded.
Reset Defaults	Discards any changes made and sets data to default values.
Clear Counters	Resets counters on the displayed page.

Setting up Input Information

Setting up the RF Input

1 From the user interface of the D9854, click **Input > Input Setup**. The Input Setup page is displayed.

2 In the RF Input Selection section, select **Use RF Input** to activate an RF input. You can select RF 1 to RF 4 below.

3 Select UserCfg in the **Input Selection** to lock to the RF input set by the user. Select SW Map to use the orbital position settings to select the RF input. It is recommended that you validate the orbital position for SW Map option.

4 Select an RF input to activate (**Use RF 1, Use RF 2, Use RF 3, or Use RF 4**).

5 In the **Tuning** section, enter the current operating **Downlink Frequency** used by the receiver for tuning the received digital signal. You can enter a value in the range from 0.0 to 15.0 GHz.

6 Type the **Symbol Rate**. The symbol rate must match that of transmitted signal. You can enter a value in the range from 1.0 to 45.0 Ms/s for DVB-S, 1.0 to 30.0 for DVB-S2 if Pilot Present is set to Yes on the Front Panel, or 5.0 to 30.0 for DVB-S2 if Pilot Present is set to No on the Front Panel.

7 Select the Forward Error Correction (**FEC**) inner code rate. The FEC rate must match the FEC of the transmitted signal. You can select 1/2, 2/3, 3/4, 5/6, 7/8, or Auto.

8 Select the **Modulation** type for the received signal (DVB-S or DVB-S2).

9 Select the **Roll Off** factor of the incoming signal (.20, .25, .35). Set the value to .20 or .35 when DVB-S modulation is used, and either of the three when DVB-S2 is used. Use a small number to reject or filter carriers close to the same frequency.

10 Set the input signal spectrum inversion setting (**IQ**), which allows the operator to track and select inverted and non-inverted digital signals. This is normally used to automatically reject or filter out unwanted signals.

When set to Auto, signal is tracked and inverted for correct selection, as required. When set to Opposite, the signal is always inverted. Conversely, when set to Normal, the signal is not inverted.

11 The **RF1 22KHz** is only applicable for dual band applications. Select whether to transmit the 22 kHz tone Local Oscillator control signal of RF1. The selections are On, Off, or Auto. Select Auto to use the crossover frequency to determine if the tone is transmitted.

12 In the **RF1 Power** drop-down menu, set the power output of RF1 to the external Low Noise Block (LNB).

You can set the RF1 Power to Off, 13V, 18V, V-NIT or H-NIT. When RF1 Power is set to V-NIT or H-NIT, it will use vertical and horizontal polarity until it is automatically read from the NIT.

Note: Power will not be applied to the LNB when set to Off.

13 In the **RF Input LNB Configuration** section, for RF1, RF2, RF3, and/or RF4, set the lower local oscillator frequency, in GHz, of the LNB in the **LO1 (Ghz)** column. If it is a single band oscillator, set its frequency, in GHz. You can enter a value in a range from 0.0 to 15.0 GHz. This value must be lower than the value for LO2.

14 For RF1, RF2, RF3, and/or RF4, set the higher oscillator frequency, in GHz, of the LNB in the **LO2 (Ghz)** column. If it is a single band oscillator, set this value to 0.0. You can enter a value in a range from 0.0 to 15.0 GHz. This value must be higher than the value for LO1. In single-band LNB applications, set this value to 0.0.

15 Enter the **Crossover** frequency for RF1, RF2, RF3, and/or RF4. This is an internal threshold frequency used for selecting the LO1 or LO2 frequency, depending on the current downlink frequency settings. This option is only used in dual-band LNB applications.

You can enter a value in a range from 0.0 to 15.0 GHz. In a single-band LNB applications, set this value to 0.0.

16 Select the signal **Polarisation** setting (Horizontal, Vertical, or Automatic). This setting is only applicable when the LNB Power is set to H-NIT or V-NIT. It marks the polarity of the signal connected to the current RF input.

17 Set the Orbital Position (**Orbital Posn**) for RF1, RF2, RF3, and/or RF4, in degrees. This is the location in orbit of the satellite currently being used. The satellite position (in degrees) in combination with the direction (either E (East) or W (West)) denotes the satellite position the dish connected to the current RF Input should point. This is used when the satellite is not available in the look-up menu list.

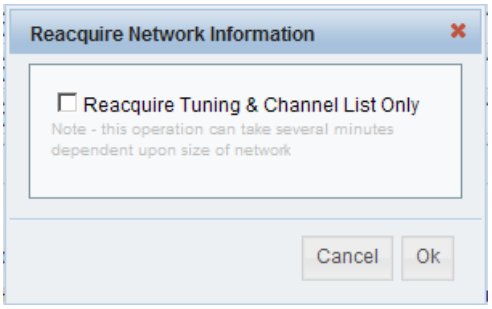
For manual configuration, enter the location of the satellite using the numerical keypad. The receiver will not recognize the satellite name and identify it as Unknown. This setting is required to resolve any ambiguity between RF inputs during automatic disaster recovery.

18 Select the **East/West Flag** for RF1, RF2, RF3, or RF4. This is the satellite position the dish connected to the current RF Input should point. The options are East, West, or N/A (Not Applicable).

19 Click **Apply**.

20 Click **Validate Orbital Position** to validate the RF inputs to match those expected by the network. The receiver will check to see if all frequencies in the Network Information Table (NIT) can be tuned to. The Date is displayed as the last date that the Validate operation was performed.

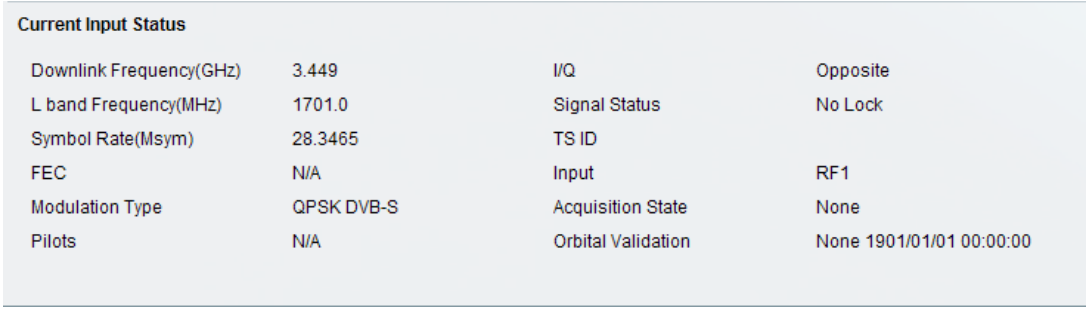
21 Click **Reacquire** to re-acquire the signal using the tuning parameters from user settings. The Reacquire Network Information window is displayed.



Select **Reacquire Tuning & Channel List Only** for the decoder to tune back to the user configured input and frequency and re-acquire the PSI/SI information back to the selected channel. Click **OK**.

Note: This operation can take several minutes, depending on the size of the network.

22 The **Current Input Status** section displays the current RF status.



The following table describes the Current Input Status information displayed:

Parameter	Description
Downlink Frequency (GHz)	The current downlink frequency, in GHz.
L band Frequency (MHz)	The current L-Band frequency, in MHz.
Symbol Rate (Msym)	Symbol rate of the received signal, in Msymbols/second.
FEC	The FEC (Forward Error Correction) rate of the received signal (N/A, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 7/8, 8/9 or 9/10).
Modulation Type	The modulation type for the received signal (N/A, QPSK, 8PSK, DVB-S or DVB-S2).
Pilots	Indicates whether a Pilot is present for the received signal. The Pilot is set on the modulator for input signal synchronization purposes.
I/Q	The IQ (Input Signal Inversion) for the received signal (Inv or NonInv).
Signal Status	Indicates whether the input signal is locked. ■ Locked - Indicates the receiver is locked to a carrier with no valid content. ■ Lock+Sig - Indicates the receiver is locked to a carrier with valid content. ■ No Lock - Indicates the receiver is not locked to a carrier.
TS ID	The Transport ID (in the range from 1 to 65535).
Input	The active input port receiving the signal (RF1, RF2, RF3, RF4, or ASI).
Acquisition State	Displays Full if the ASI and PSI tables have all been found. Otherwise, it will display Degraded if there are missing tables or None if no ASI or PSI tables have been found.
Orbital Validation	Displays the last date that the Validate Orbital Position operation was performed.

23 Click **Apply**.

Setting up the ASI Input

1 From the user interface of the D9854, click **Input > Input Setup**. The Input Setup page is displayed.

2 Click on the **ASI** tab.

3 Select **Use ASI Input** to tune to the ASI input.

Note: Setting a new input to be active will deactivate the currently active input.

4 The **ASI Input Status** section displays the current RF status. The following table describes the ASI Input Status information displayed:

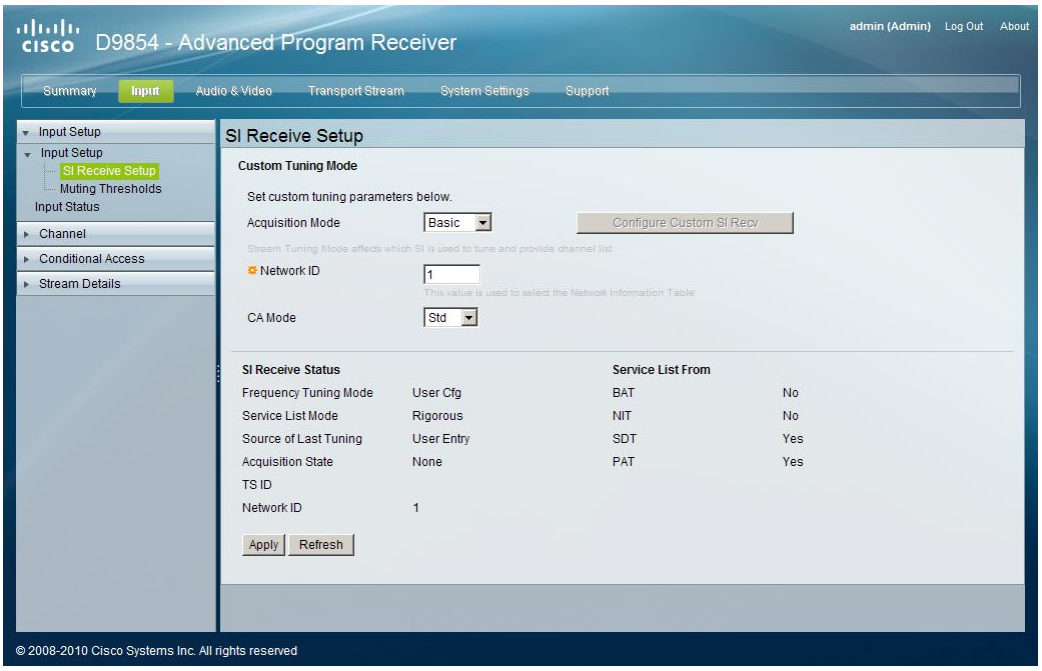
Parameter	Description
Active Input	Indicates the currently selected input source (RF1, RF2, RF3, RF4, or ASI).
Signal Status	Indicates whether the input signal is locked. ■ Locked - Indicates the receiver is locked to a carrier with no valid content. ■ Lock+Sig - Indicates the receiver is locked to a carrier with valid content. ■ No Lock - Indicates the receiver is not locked to a carrier.
Input Rate (Mbps)	Displays the bit rate of the input transport stream, in Mbps.
ASI Link	Indicates whether there is a transport stream link error (Error, Ok, or N/A).

Parameter	Description
ASI Transport	Indicates the current transport synchronization status (Error, Ok, or N/A).
ASI Packet Size (bytes)	Indicates the packet size (in bytes) for the ASI input (188, 204, or N/A).
Acquisition State	Displays Full if the ASI and PSI tables have all been found. Otherwise, it will display Degraded if there are missing tables or None if no ASI or PSI tables have been found.
TS ID	The Transport ID (in the range from 1 to 65535).
Network ID	The Network ID (in the range from 1 to 65535) of the uplink signal the receiver is to receive when using the selected preset. The receiver's Network ID must match the Network ID associated with the transmitted signal that identifies the NIT to be used. **Note:** Each network must be assigned a unique ID (number).

1 Click **Apply**.

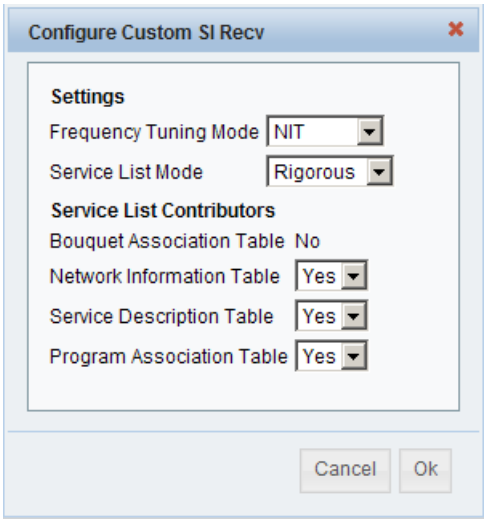
Setting up SI Receive Parameters

1 From the user interface of the D9854, click **Input > Input Setup**, expand **Input Setup** and then click **SI Receive Setup**. The SI Receive Setup page is displayed.



2 In the **Custom Tuning Mode** section, **Acquisition Mode** drop-down menu, select the tables required for the service list creation and signal acquisition. The selections are Auto, Basic, or Custom. The default is Basic. If you select Basic, it requires NIT to be present. If you select Auto, it uses all the available service list tables and it will acquire if any table is present.

If you select Custom, click **Configure Custom SI Recv** and the Configure Custom SI Recv window opens:



3 Set the **Frequency Tuning Mode**, which determines whether to use the NIT to tune to other transports, or to force the tuning to user configuration settings. Select NIT and the receiver can change tuning parameters to use all transports available in the NIT. Select User Cfg to force the receiver to use the user selected tuning parameters.

4 The **Service List mode** determines which tables are required for tuning.

Rigorous requires all service list tables to be present to acquire the signal.

Degraded requires any service list table to be present to acquire the signal.

5 In the **Network Information Table** (NIT) drop-down menu, select Yes to use the NIT when creating the service list.

6 In the **Service Description Table** (SDT) drop-down menu, select Yes to use the SDT when creating the service list.

7 In the **Program Association Table** (PAT) drop-down menu, select Yes to use the PAT when creating the service list.

Note: You cannot change the Bouquet Association Table value. It is not supported in the current release.

8 Click **OK**.

9 Enter the **Network ID** of the uplink signal the receiver is to receive when using the selected preset. The receiver's network ID must match the network ID associated with the transmitted signal that identifies the NIT to be used. You can enter a value in the range from 1 to 65535. The default is 1.

10 In the **CA Mode** drop-down list, select how the conditional access will attempt to descramble the scrambled programs. The behavior of this setting is different between PowerVu streams and those that require a CAM.

For PowerVu Streams:

- Std - In standard mode, if a program is not authorized, even if some services are not scrambled, the whole program will not be authorized.
- Open - In open mode, if a program is not authorized, any services in the program that are not scrambled will still be available.

For Non-PowerVu (CAM) streams:

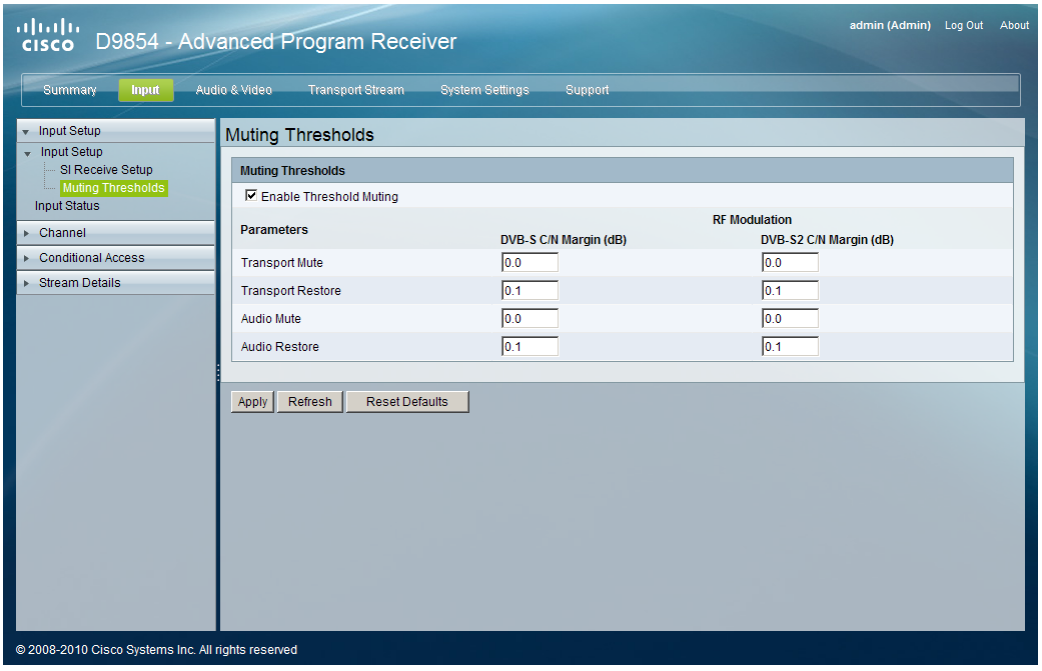
- Std - In standard mode, if a program's CA system is not supported by the CAM, the channel is not authorized.
- Open - In open mode, all the program's CA systems are validated by the CAM. The channel is always authorized.

11 The **SI Receive Status** section displays all the current SI Receive settings. It also displays the source of last tuning and the last Preset Number activated. The **Service List From** section displays the current settings of the allowed services (BAT, NIT, SDT, PAT).

12 Click **Apply**.

Setting up Muting Threshold Controls

1 From the user interface of the D9854, click **Input > Input Setup**, expand **Input Setup** and then click **Muting Thresholds**. The Muting Thresholds page is displayed.



2 Select **Enable Threshold Muting** to mute the transport stream and audio in the event of an unstable, poor, or loss of signal condition. The default is selected.

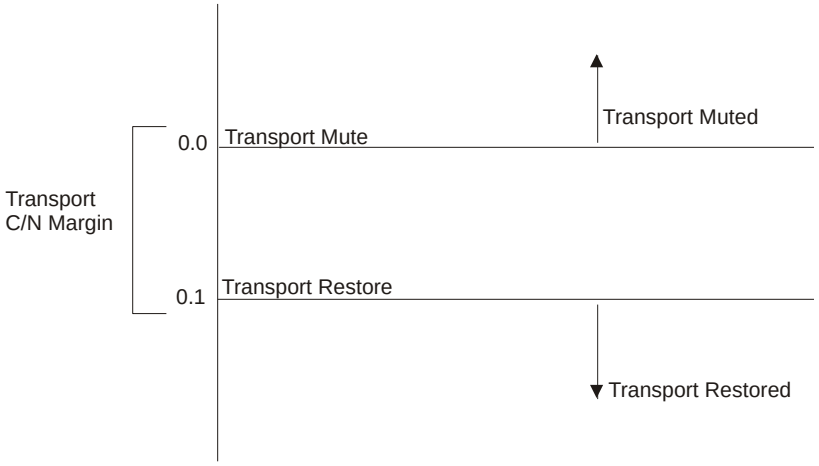
3 The **Transport Mute** for both **DVB-S C/N Margin (dB)** and **DVB-S2 C/N Margin (dB)** sets the DVB-S and DVB-S2 Carrier to Noise margins, in dB, below the transport outputs that will be muted. The receiver uses these thresholds to determine when to mute the transport in the event of a noisy, poor, or loss of signal condition. The adjustable operating range is from -30.0 to 30.0 dB. This setting must be below the respective Restore value. The default setting is 0.0.

Note: Enable Threshold Muting must be selected for these settings to be active.

4 The **Transport Restore** for both **DVB-S C/N Margin (dB)** and **DVB-S2 C/N Margin (dB)** sets the DVB-S and DVB-S2 Carrier to Noise margins, in dB, above the transport outputs that will be muted. The receiver uses these thresholds to determine when to restore the transport after it has been muted. The adjustable operating range is from -30.0 to 30.0 dB. This setting must be above the respective Mute value. The default setting is 0.1.

Note: Enable Threshold Muting must be selected for these settings to be active.

The following displays the Transport Default C/N Margin Relationship:



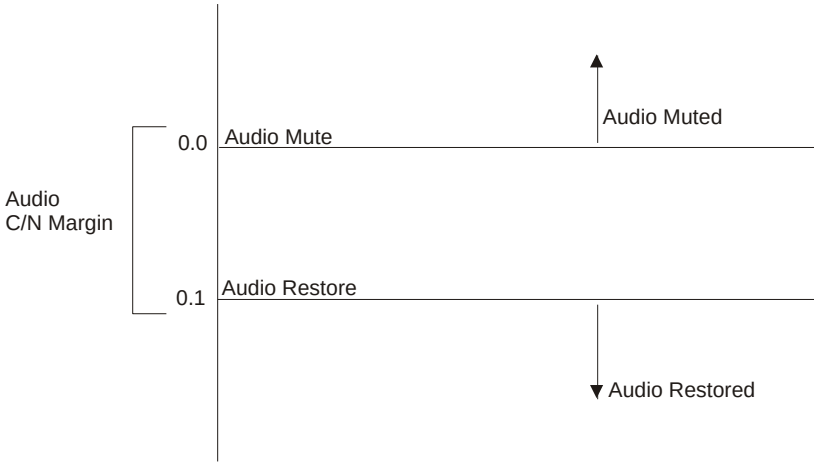
5 The **Audio Mute** for both **DVB-S C/N Margin (dB)** and **DVB-S2 C/N Margin (dB)** sets the DVB-S and DVB-S2 Carrier to Noise margins, in dB, below the audio outputs that will be muted. The receiver uses these thresholds to determine when to mute the audio in the event of a noisy, poor, or loss of signal condition. The adjustable operating range is -30.0 to 30.0 dB. This setting must be below the respective Restore value. The default setting is 0.0.

Note: Enable Threshold Muting must be selected for these settings to be active.

6 The **Audio Restore** for both DVB-S C/N Margin (dB) and DVB-S2 C/N Margin (dB) sets the DVB-S and DVB-S2 Carrier to Noise margins, in dB, above the audio outputs that will be restored. The receiver uses these thresholds to determine when to restore the audio after it has been muted. The adjustable operating range is from -30.0 to 30.0 dB. This setting must be below the respective Mute value. The default setting is 0.1.

Note: Enable Threshold Muting must be selected for these settings to be active.

The following displays the Audio Default C/N Margin Relationship:



7 Click **Apply**.

Viewing the Input Status

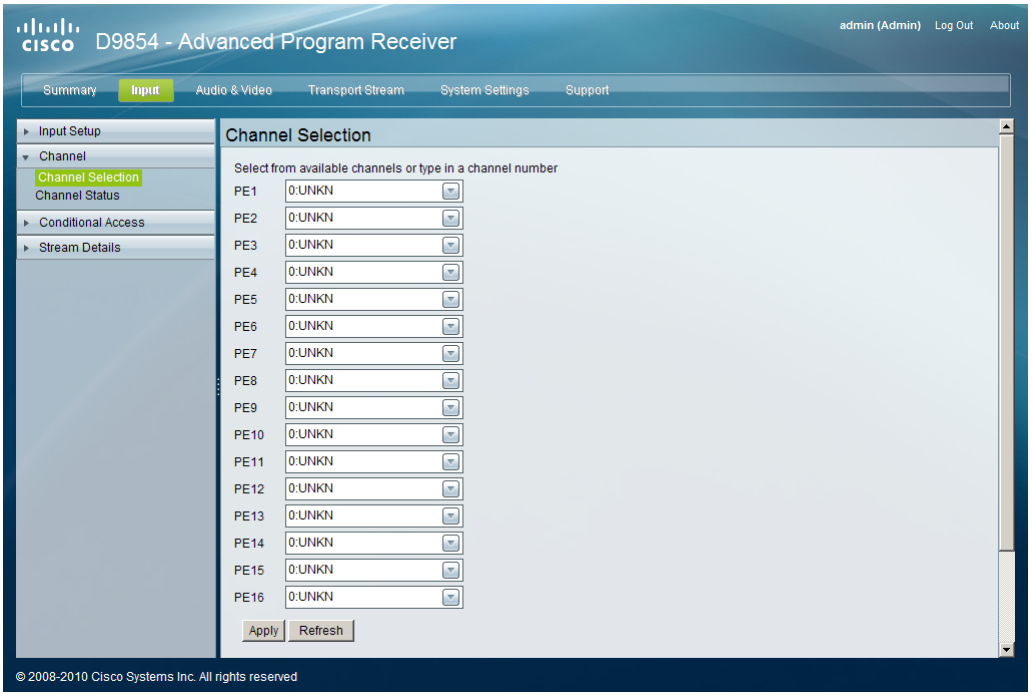
1 From the user interface of the D9854, click **Input > Input Setup > Input Status**. The Input Status page is displayed.

The **Current Input Status** section displays the same information shown in the Input Setup page. For more information on the parameters displayed, see Setting up the RF Input.

The **Tuner Performance** section displays the satellite dish information, such as the C/N Margin and Signal Level.

Setting up the Channel Selections

1 From the user interface of the D9854, click **Input > Channel > Channel Selection**. The Channel Selection page is displayed.



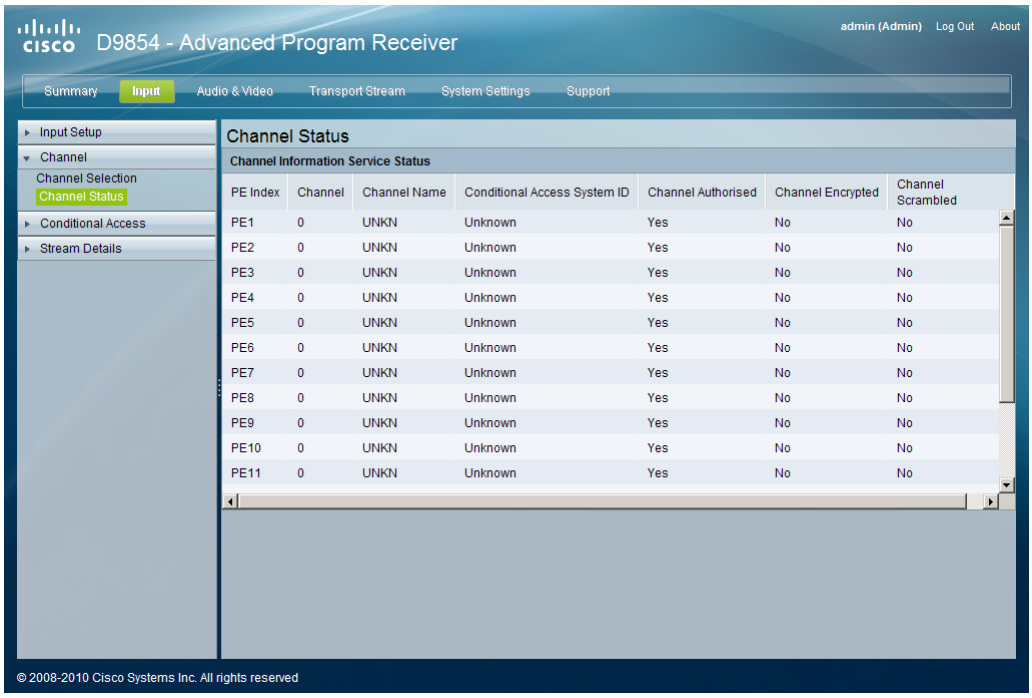
2 Enter a channel number for up to 16 program entries. Alternatively, use the drop-down arrow to select an available channel.

Note: Only PE1 supports PowerVu descrambling. Do not assign PowerVu channels to PE2 to PE16. If any PowerVu channels are assigned to PE2 to PE16, all service PIDs associated with these channels will be dropped from the transport output.

3 Click **Apply**.

Viewing the Channel Status

From the user interface of the D9854, click **Input > Channel > Channel Status**. The Channel Status page is displayed.



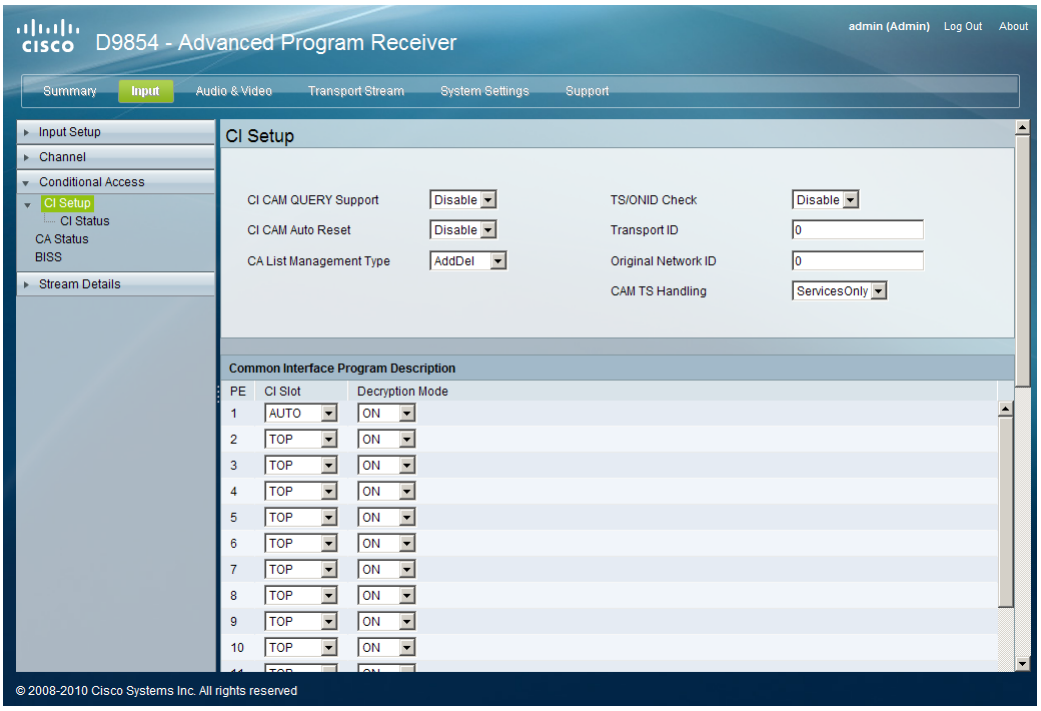
The following table describes the channel information displayed:

Parameter	Description
PE Index	Indicates the Program Entry number (PE1 to PE32).
Channel	Displays the input channel of the current PE. The channel is displayed in a range from 1 to 65535.
Channel Name	Displays the channel name of the current PE.
Conditional Access System ID	Indicates the type of Conditional Access (CA) system used by the program (SA, BISS, or FTA).
Channel Authorised	Indicates whether the receiver is authorized to receive the program (Yes or No).
Channel Encrypted	Indicates whether the received program is encrypted (Yes or No).
Channel Scrambled	Indicates whether the received program is scrambled (Yes or No).

Parameter	Description
SR Status	Displays the status of an alternate authorized program/service from the same transport stream when the receiver is not authorized to view the primary program.This is an uplink initiated function that maps the alternate service to the original (primary) service PIDs, replacing the original service with the alternate service at the digital transport output. No local intervention is required by the receiver operator for provision of this service replacement feature. The statuses are Not Started, Primary, or Alternate. Not Started - Indicates that an event has not started. Primary - Indicates that a service replacement event is active, but the primary program is being displayed. Alternate - Indicates that a service replacement event is active, and that the receiver has tuned to and is displaying the alternate program/event as it is not authorized to view the scheduled event.
SR Type	Indicates the type of service replacement event. None - Indicates that no service replacement event is scheduled. Scheduled - Indicates that all receivers will tune to the alternate program at the scheduled time. This setting is only applicable to current PE1 (i.e., PowerVu) programs; not PE2 through PE32. CA - Indicates that only receivers unauthorized to view the scheduled program will tune to the alternate program according to the selected authorization tier bits. This setting is only applicable to current PE1 (i.e., PowerVu) programs; not PE2 through PE32. Cue Trigger - Indicates that only receivers authorized by the Cue Trigger mask will tune to the scheduled program/event. Cue triggers can only be initiated /controlled on PE1 (i.e., PowerVu).
SR Start/End Time	Displays the start/end time of the service replacement event when one is scheduled; otherwise, the default start time is displayed. The default start time is 2007/09/01 00:00:00.

Configuring the Common Interface (CI) Information

1 From the user interface of the D9854, click **Input > Conditional Access > CI Setup**. The CI Setup page is displayed.



2 Select Enable in the **CI CAM QUERY Support** drop-down to query the CAM prior to decryption to ensure that the card can be decrypted. The default is Disable.

3 Select Enable in **CI CAM Auto Reset** to automatically reset the card. The default is Disable.

4 In the **CA List Management Type**, select whether the Common Interface List Management should add and delete (AddDel) individual programs or update all (UpdateAll) the programs when the list changes.

Note: Updating all the programs will cause temporary loss of service for all the programs when another is being modified.

5 Select Enable in the **TS/ONID Check** drop-down if you want to restrict the incoming transport stream to the transport ID and transport original network ID listed below. If the incoming stream does not match the specified transport stream, the CAM will not decrypt. The default is Disable.

6 If you set the **TS/ONID Check** to Enable, you must define the **Transport ID** and **Original Network ID**. If the incoming stream does not match the specified IDs here, the CAM will not decrypt. You can enter a value in a range from 0 to 65535.

7 In the **CAM TS Handling** drop-down, select EntireTS to use the CAM to decrypt the entire transport stream, or select ServicesOnly to use the CAM to decrypt only the PIDs being used by the active services.

8 Select the CAM slot (**CI Slot**) to use for decryption. If you set the CI slot to AUTO for PE1, the software automatically assigns the slot capable of decrypting the stream.

Note: If CI Slot is set to AUTO, Decrypt must be set to ON.

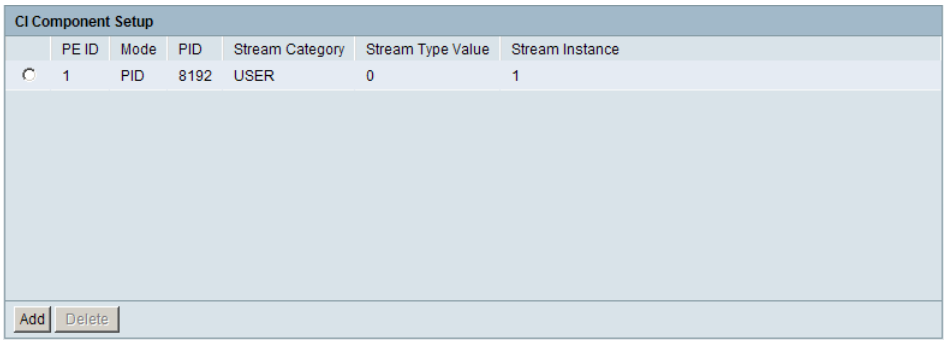
Select TOP to use the top CAM slot for decryption or select BOTTOM to use the bottom CAM slot for decryption.

9 The **Decryption Mode** Determines whether to decrypt the channel or to specify the specific components to decrypt (ON, OFF, Comp). Select ON (default) to decrypt the entire program entry. Select Comp to decrypt specific components, as specified in the CI Component Setup list.

Note: If the CI Slot is set to Auto for PE1, then Decrypt can only be set to ON.

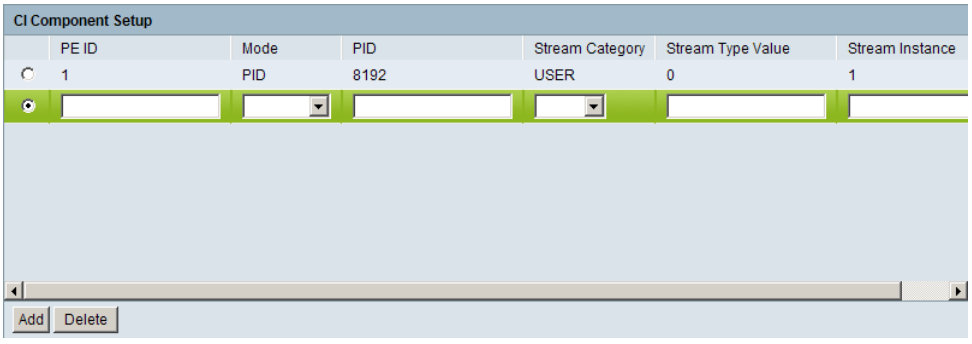
10 If you selected Comp, you must configure the parameters in the CI Components Setup section below.

11 The **CI Component Setup** section allows you to insert and maintain customized records:



12 Each record customizes the PID or stream type to decrypt. The Index number is a read only field that indicates the record number. You can maintain up to 64 records, 32 records for each CAM.

13 To insert a new record, click **Add**. A new row appears at the top of the table (see below).



There are various configurations when creating a new record. The following table summarizes the various methods:

If you set by	Parameter Settings
PID ID	Set **Mode** to PID and enter PID number.
Stream Type	Set **Mode** to Stream, select **Stream Category** (AUD, VID, SUBT, TTX, or USER) and enter **Stream Instance** of the stream type. There is an additional configuration if you select user as the Stream Category (see below).
Stream Type: User	Set **Mode** to Stream, **Stream Category** to User, manually enter the stream code in **Stream Type Value**, and then the **Stream Instance** of the stream type.

14 If you know the PID number, ensure that PID is selected under **Mode** and enter the appropriate PID number. Click **Save**.

15 To enter the stream type, select Stream under **Mode**, select the stream type in the **Stream Category** (VID, AUD, SUBT, USER, or TTX) and enter the instance of the stream type in **Stream Instance**. You can enter a range from 1 to 64. Click **Save**.

16 If you do not know the stream type, you can specify a specific hex value as the stream type. Select Stream under **Mode**, select User under **Stream Category**, enter the hex value of the stream under Stream Type Value and the instance of the customized stream type in **Stream Instance**. You can enter a two digit hexadecimal value for the Stream Type and a range from 1 to 64 for the Stream Instance. Click **Add**.

17 To delete a record, select the record you want to remove and click **Delete**.

18 The **System ID** section displays the system name and ID number of the CAM for the top/bottom slots.

Viewing the Common Interface (CI) Status

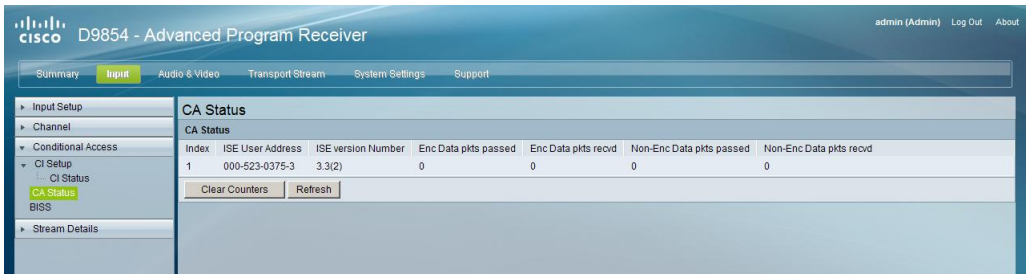
From the user interface of the D9854, click **Input > Conditional Access**, expand CI Setup and then click CI Status. The CI Status page is displayed.

The following table describes the CI Status:

CI Status	**Description**
CI Slot	Indicates whether it is the top slot (TOP) or the bottom slot (BOTTOM).
CAM Status	Status of the CAM (Ready or Not Ready).
Sys Name	System name of the CAM.
Comp Name	Displays the company name of the CAM.
Manufacturer Code	The manufacturer's code.
Manufacturer ID	The factory loaded application number of the CAM.
Serial Number	The unique serial number of the CAM.
Hardware Version	The hardware version number of the CAM.
Application Version	The software version number of the CAM.

Viewing the CA Status

From the user interface of the D9854, click **Input > Conditional Access > CA Status**. The CA Status page is displayed.

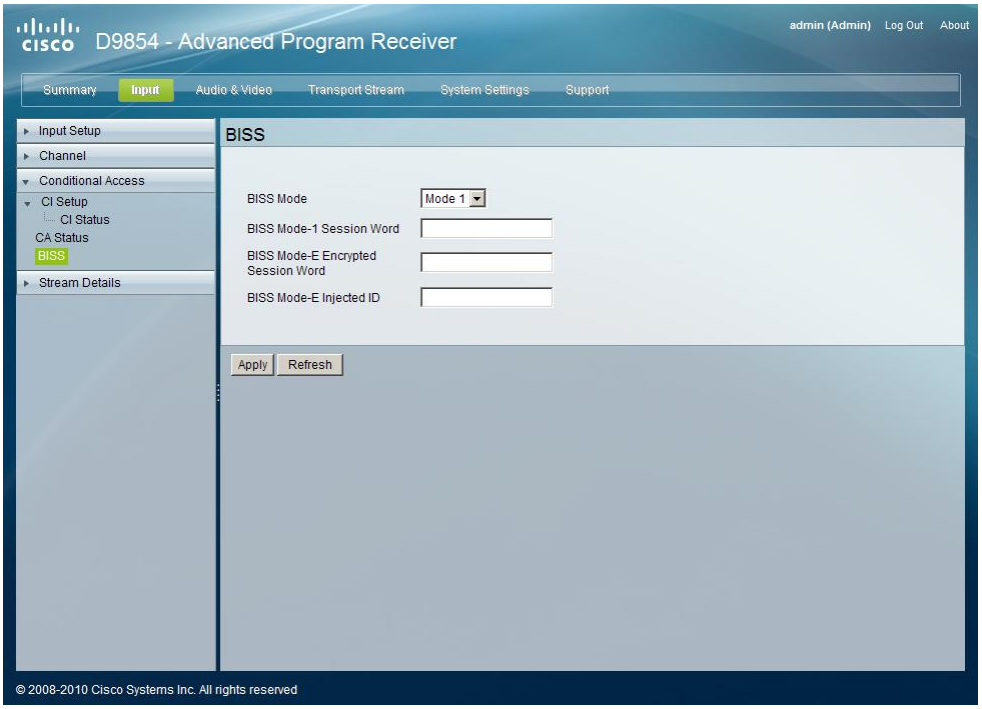


The following describes the columns in the CA Status table:

Status	Description
Index	The ISE number.
ISE User Address	The ISE User Address. It is a 11 digit address in the following format: ###-###-####-#.
ISE Version Number	The ISE version number. It consists of 7 characters.
Enc Data pkts passed	Indicates the number of encrypted Addressable Data Packets successfully processed. Ideally, the ADP Enc Pass and ADP Enc Total numbers should be identical.
Enc Data pkts recvd	Indicates the number of encrypted Addressable Data Packets received. Ideally, the ADP Enc Pass and ADP Enc Total numbers should be identical.
Non-Enc Data pkts passed	Indicates the number of non-encrypted Addressed Data Packets successfully processed. Ideally, the ADP Enc Pass and ADP Enc Total numbers should be identical.
Non-Enc Data pkts recvd	Indicates the total number of non-encrypted Addressable Data Packets received. Ideally, the ADP Non-Enc Pass and ADP Non-Enc Total numbers should be identical.

Setting up the BISS Mode

1 From the user interface of the D9854, click **Input > Conditional Access > BISS**. The BISS page is displayed.



2 Select the Basic Interoperable Scrambling System (**BISS**) **Mode** for the receiver (Mode 1 or Mode E). All channels assigned to the PE identified as BISS CA-controlled in the PMT will be decrypted.

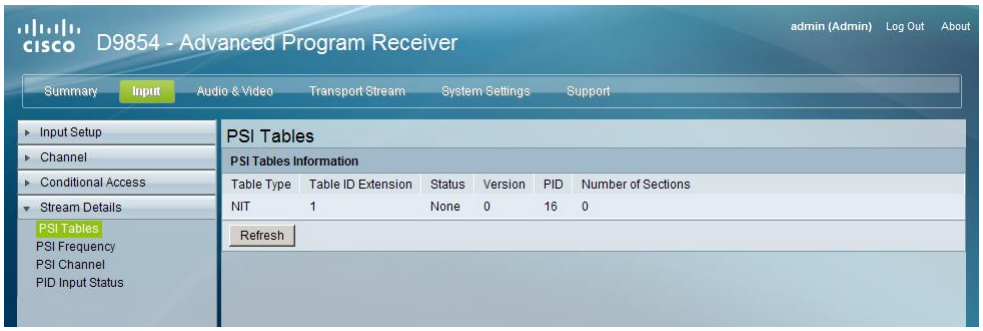
3 If you selected BISS Mode 1, enter a fixed 12-character **BISS Mode-1 Session Word.** Once entered it cannot be viewed and it is only displayed as asterisks (*). Contact your program provider for the session word.

4 If you selected BISS Mode E, enter the 16-character **BISS Mode-E Encrypted Session Word** and the 14-character **BISS Mode-E Injected ID**. Once entered, neither of these values can be viewed and it is only displayed as asterisks. Contact your program provider for the respective session word and/or injected ID.

5 Click **Apply**.

Viewing the PSI Tables

From the user interface of the D9854, click **Input > Stream Details > PSI Tables**. The PSI Tables page is displayed.

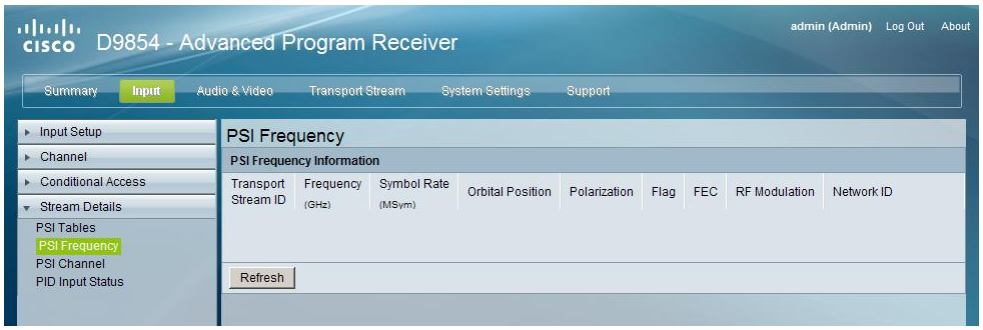


You cannot make any changes in the PSI table and can only view the PSI tables received and their settings. The following is a list of the various columns:

Abbreviation	Description
Table Type	Indicates the MPEG table acronym. PAT, CAT, PMT, TSDT, NIT, NIT Other, SDT, SDT Other, BAT, AEIT P/F, OEIT P/F, TDT, RST, ST, TOT, DIT, SIT, ECM Odd, ECM Even, EMM, MPE, DPI, DRT, CDT, MCT, MIT, MAT, ECT, or Invalid Table ID
Table ID Extension	Displays the MPEG/DVB Table ID.
Status	Indicates the reception status of the table. None, Partial, Full, Update, Timeout, or Lost
Version	Indicates the table version number.
PID	Indicates the value of the PID on which the table is present.
Number of Sections	Indicates the number of sections in the table.

Viewing PSI Frequency Table Information

From the user interface of the D9854, click **Input > Stream Details > PSI Frequency**. The PSI Frequency page is displayed.



You cannot make any changes in the PSI Frequency table and can only view the available frequency plans stored in the receiver. The following is a list of the various columns:

Abbreviation	**Description**
Transport Stream ID	Displays the transport ID.
Frequency (GHz)	Displays the downlink frequency, in GHz (0.0 to 15.0 GHz).
Symbol Rate (MSym)	Displays the symbol rate, in Mbps.
Orbital Position	Displays the orbital position of the satellite, in degrees (East of West).
Polarization	Displays the polarity of the received signal (H,V, or Off).
Flag	Displays the satellite position (in degrees), in combination with the direction (East or West).
FEC	Indicates the Forward Error Correction inner code rate (1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 7/8, 8/9, or 9/10).
RF Modulation	Indicates the modulation of the signal (QPSK DVB-S, QPSK DVB-S2, 8PSK DVB-S2 or 16QAM DVB-S2).
Network ID	Displays the original network ID.

Viewing the PSI Channels

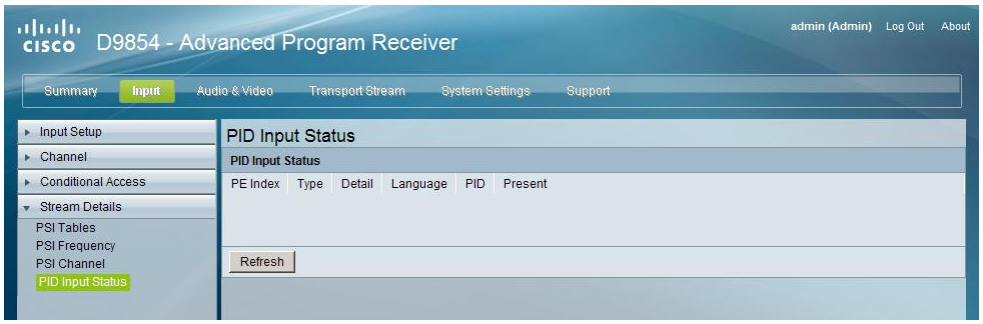
From the user interface of the D9854, click **Input > Stream Details > PSI Channel**. The PSI Channel page is displayed.

You cannot make any changes in the PSI Channel table and can only view the available channels and their settings. The following is a list of the various columns:

Abbreviation	Description
Service ID	Indicates the virtual channel number.
TS ID	Displays the identification number of the transport on which the channel is available. For more information on the transport streams, see ***Viewing PSI Frequency Information*** (on page 155).
Program Name	Indicates the name of the channel.
PMT PID	Indicates the PID of the channel's Program Map Table.
ECM PID	Indicates the PID of the channel's Entitlement Control Message stream.

Viewing the PID Input Status

From the user interface of the D9854, click **Input > Stream Details > PID Input Status**. The PID Input Status page is displayed.



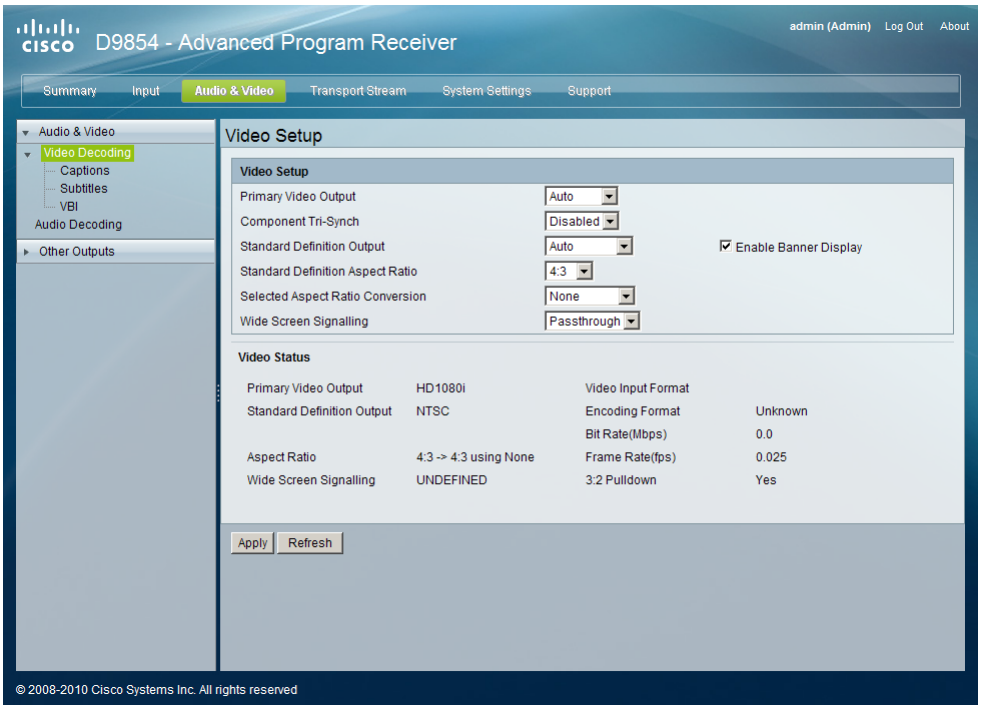
You cannot make any changes in the PID Input Status table and can only view the available channels and their settings. The following is a list of the various columns:

Abbreviation	Description
PE Index	Indicates the Program Entry number (PE1 or PE32).
Type	Name assigned to the Program Entry, up to 4 alphanumeric characters.
Detail	Displays any detail associated with the program PID (e.g., MPG2 PID). The parameters are: MPG1 VID, MPG2 VID, 422 VID, H264 VID, HD VID, MPG4 VID, MPG AUD, MPG2 AUD, DVB AC3, DVB DDP, AAC AUD, HEAAC, AUD, MPG4 AUD, DBE AUD, DTS AUD, DVB TXT, DVB VBI, DVB SUBT, DVB ASYN, DVB SYNS, DVB SYND, DVB MPE, DVB DCAR, DVB OCAR, SA VBI, ATSC AC3, ATSC DDP, SA UTLD, SCTE DPI, SA HSD, SA CDDL, SA WBD, SA SUBT, ECM, EMM, PCR, or UNKNOWN.
Language	Displays the language code carried in the PMT for the current PID, if applicable.
PID	The program PID number, in the range from 1 to 8192.
Present	Indicates whether the PID is present in the incoming stream (Yes or No).

Setting up Audio and Video Information

Setting up the Video Parameters

1 From the user interface of the D9854, click **Audio & Video > Audio & Video > Video Decoding**. The Video Setup page is displayed.



2 Select the **Primary Video Output** format for local decoding. The options are Auto, HD 720p, HD 1080i, or SD.

3 Select whether to enable or disable the **Component Tri-Synch**.

4 In the **Standard Definition Output** drop-down, select the actual standard definition output format of the primary video if the PV Output is set to SD. The options are Auto, NTSC, PAL-N (AR), PAL-M, or PAL-B/G/I/D. You must use NTSC for 525-line systems and PAL-B/G/I/D for 625-line systems.

5 Select the **Standard Definition Aspect Ratio** of your TV monitor (4:3 or 16:9). The default is 4:3. Set it to the corresponding value.

6 Select the **Selected Aspect Ratio Conversion** that the receiver will perform on the incoming signal for the picture to be displayed correctly on your TV, based on the **Standard Definition Aspect Ratio** selection.

The options are None, Auto, Auto AFD, 16:9 L/B, 4:3 P/B, 14:9, 4:3 CCO, and 16:9 Scale. The default is Auto.

7 Select the **Wide Screen Signalling** output mode. It is used to select how the receiver affects PAL WSS when it is present in the VBI line 23. The table below describes each of the options. The default is Auto.

WSS Mode	Description
Passthrough	Passes WSS unmodified as received by the receiver.
Auto:Create	Creates WSS to output the correct aspect ratio when performing aspect ratio conversion.
Auto:Modify	If WSS is present in the input stream, it is modified to output the correct aspect ratio when performing aspect ratio conversion. If WSS is not present in the input, no WSS will be present in the output.
Suppress	Removes WSS output.

8 The **Video Status** section displays the current video settings, and the encoding, bit rate, FPS and aspect ratio of the incoming signal. The fields are read-only. The following table describes the video status information displayed:

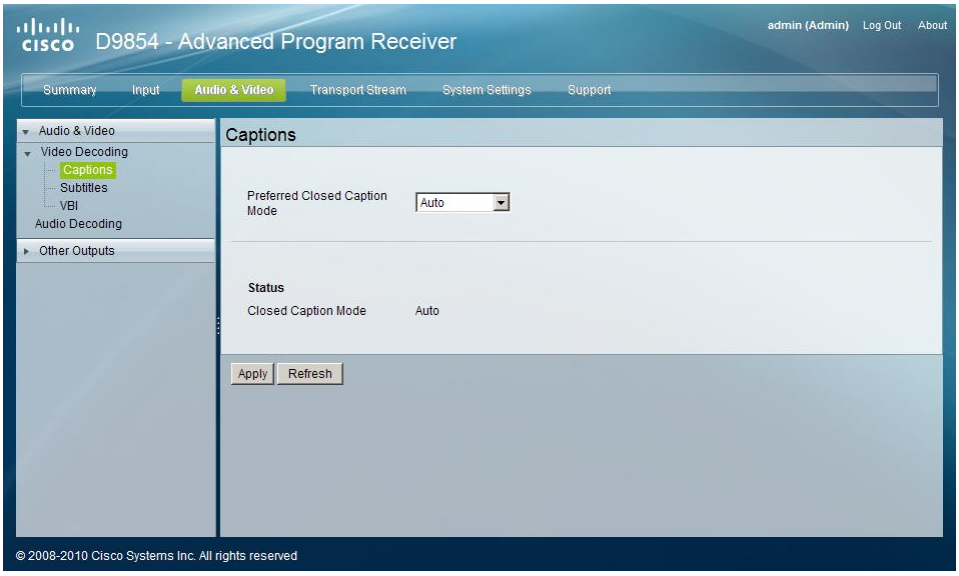
Video Status	Description
Primary Video Output	Indicates the actual output video format (Auto, HD 720p, HD 1080i, or SD).
Standard Definition Output	Displays the actual standard definition format of the primary video output if the PV Output is set to SD.
Aspect Ratio	Displays the standard definition aspect ratio of your TV monitor.
Wide Screen Signalling	Displays the Wide Screen Signaling output mode.
Encoding Format	The input stream type of the received signal/program.
Bit Rate (Mbps)	Indicates the bit rate of the input video stream, in Mbps.
Frame Rate (fps)	Indicates the frame rate of the input video stream.
3:2 Pulldown	Indicates whether 3:2 pulldown is detected, was recently detected, or not detected in the input video stream (Yes, Recent, or No).

9 Select **Enable Banner Display** to display alarms and warnings on the on-screen display (e.g., TV monitor).

10 Click **Apply**.

Setting up Captions

1 From the user interface of the D9854, click **Audio & Video > Audio & Video**, expand **Video Decoding** and then click **Captions**. The Captions page is displayed.



2 In the **Preferred Closed Caption Mode**, select the type of closed captioning to use if there are multiple available in the stream. The default is Auto.

Note: SA Custom is not supported when telecine video coding is enabled.

3 The **Closed Caption Mode** in the **Status** section displays the actual closed caption mode in the output. This is read-only.

4 Click **Apply**.

Setting up Subtitles

1 From the user interface of the D9854, click **Audio & Video > Audio & Video**, expand **Video Decoding** and then click **Subtitles**. The Subtitles page is displayed.

2 Select the **Subtitle Control** to use to display the program subtitles. The following table describes each of the available options:

Op Mode Selection	Description
Off	No subtitles are displayed.
On	Displays DVB or Imitext subtitles, if available.
DVB	Displays only DVB titles, if available. Otherwise, no subtitles are displayed.
Imitext	Displays only Imitext subtitles, if available. Otherwise, no subtitles are displayed.

3 Set the **Imitext Position** of the on-screen subtitle text (Standard or Extended).

4 The **Imitext Foreground Colour** sets the color for Imitext subtitles. Auto displays text in the color transmitted by the subtitling equipment. Yellow and White overrides the color set by the uplink and display text in the selected color.

5 The **Imitext Background Color** sets the text background for Imitext subtitles. The following table identifies the affect each setting has on the displayed subtitle text:

BackGnd Option	Description
Auto	Uses the uplink subtitling equipment setting.

BackGnd Option	Description
Shadow	Applies an outline to the right side of each text character. No background box is applied to subtitles, i.e., text is visible directly on top of video.
Opaque	Applies a black box to each text character.
Semi	Applies a semi-transparent box to subtitle text.
None	No shadow or outline is applied to subtitle text.

6 In the **Subtitle Language Settings** section, select the input source for the subtitle language. The default is Language List. Language Entry and PMT Order are more applicable for advanced applications. The following table describes each of the available options and how to set them:

Select Language By Option	Description
Language List	Select the MPEG language to display from the available list. The following are the available options: ara (Arabic), btk (Batak (Indonesia), ben (Bengali), bul (Bulgarian), chi (Chinese), cze (Czech), dan (Danish), dut (Dutch), eng (English), fin (Finnish), fre (French), ger (German), gre (Greek), heb (Hebrew), hin (Hindi), hun (Hungarian), ice (Icelandic), ind (Indonesian), ita (Italian), jpn (Japanese), kor (Korean), may (Malay), mul (Multiple Languages), nor (Norwegian), per (Persian), pol (Polish), por (Portuguese), rum (Romanian), rus (Russian), san (Sanskrit), scc (Serbian), sin (Sinhalese), slo (Slovak), som (Somali), spa (Spanish), swe (Swedish), tai (Tai Other), tam (Tamil), tha (Thai), tur (Turkish), ukr (Ukrainian), or vie (Vietnamese)
Language Entry	Enter the three-character code provided by your uplink service provider (e.g., eng for English). For a list of language codes, see Language Codes - Sorted by Alpha 3-Letter Code (ISO 639-2).
PMT Order	Select the subtitle PID entry to display (First to Eighth). This information is available from your uplink provider.

7 Click **Apply**.

Setting up the VBI

1 From the user interface of the D9854, click **Audio & Video > Audio & Video**, expand **Video Decoding** and then click **VBI**. The VBI page is displayed.

2 Select to enable Vertical Interval Test Signal (VITS) on PAL Lines 17, 18, 330, or 331.

3 Click **Apply**.

Setting up Audio Parameters

1 From the user interface of the D9854, click **Audio & Video > Audio & Video > Audio Decoding**. The Audio Decoding page is displayed.

2 There are two audio settings. It allows you to configure the two balanced audio outputs on the rear panel (Audio 1 and Audio 2), known in the Web GUI as 1 and 2, respectively.

3 Select the **PMT Source** for the audio channel (None, AUD1 to AUD64).

4 Set the **Audio Mode**, which sets the output mixing.

Select Stereo (Left and Right are passed directly through to Left and Right), R-Mono (Right is passed to both the Left and Right), L-MONO (Left is passed to both the Left and Right), or Mixed (Left is passed to both the Left and Right, and Right is passed to both the Left and Right).

5 Set the **AC3 Compression** mode to use if the output is compressed Dolby Digital audio. The selections are Line Mode, Custom 1, Custom 0 or RF Mode. RF Mode is recommended for analog cable modulators.

6 **Left Attenuation** is the volume adjustment for the Left audio channel. You can select a value in the range from -6.0 dB to +6.0 dB, in increments of 0.5 dB.

7 **Right Attenuation** is the volume adjustment for the Right audio channel. You can select a value in the range from -6.0 dB to +6.0 dB, in increments of 0.5 dB.

The following options only appear if the D9854 contains SDI:

8 Set the Digital Out Preference for the SDI output or AES-3id output. The following describes the options:

Mode	Description
PCM Samples	If the audio source is MPEG Layer II format, the output will be routed to the SDI output as PCM.
Compressed	If the audio source is AES compressed, the output will routed to the AES-3id output, compressed.

When Digital Out Preference is set to PCM Samples, the output is PCM regardless of whether it's MPEG, Dolby Digital (AC-3) or AAC audio. Additionally, when the output is Compressed, MPEG-1 L1 and L2 will be output PCM, even though Dolby Digital (AC-3) and AAC is compressed (and transcoded)

Output Input	**Digital Output Preference**		
	PCM Samples	**Compressed**	
		DDP Mode	
		Transocde (Converter)	**Passthrough**
MPEG LA (MPEG-1 and MPEG-2	PCM	PCM	PCM
Dolby Digital (AC-3)	PCM	Dolby Digital (AC-3)	Dolby Digital (AC-3)
Dolby Digital Plus (E-AC-3) (Bit rate < 1.5 Mbps)	PCM	Dolby Digital (AC-3)	Dolby Digital Plus (E-AC-3) (no over-clocking, x1)
Dolby Digital Plus (E-AC-3) (Bit rate > 1.5 Mps)	PCM	Dolby Digital (AC-3)	Dolby Digital (AC-3)
MPEG-2 AAC, MPEG-4 (AAC and HE-AAC)	PCM	MPEG-2 AAC, MPEG-4 (AAC and HE-AAC)	MPEG-2, MPEG-4 (AAC and HE-AAC)

9 Set the Dolby Digital Plus output mode (**DD+ Output**). If Trans is selected, it will transcode to Dolby Digital audio output. If Pass (passthrough) is selected and the bitrate is less than 1536 kbps (48 Khz), passthrough is performed and Dolby Digital Plus compressed out is received. If Pass (passthrough) is selected and the bitrate is more than 1536 Kbps, transcoding will be performed. This setting affects only the AES-3id and SDI outputs.

Note: Dolby Digital Plus is only available on Audio 1.

Note: Ensure that the **Digital Out Preference** is set to Compressed for digital passthrough. Otherwise, only decoded PCM will be available. This parameter has no effect if the audio source is not Dolby Digital Plus.

10 In the **SDI Audio Group Setup** section, select the audio source (1 or 2) in the **Audio Decode** column and the source audio channel (1 or 2) in the Channel column for **Group Slot** 1 to 4. The Group Slot is the HANC position.

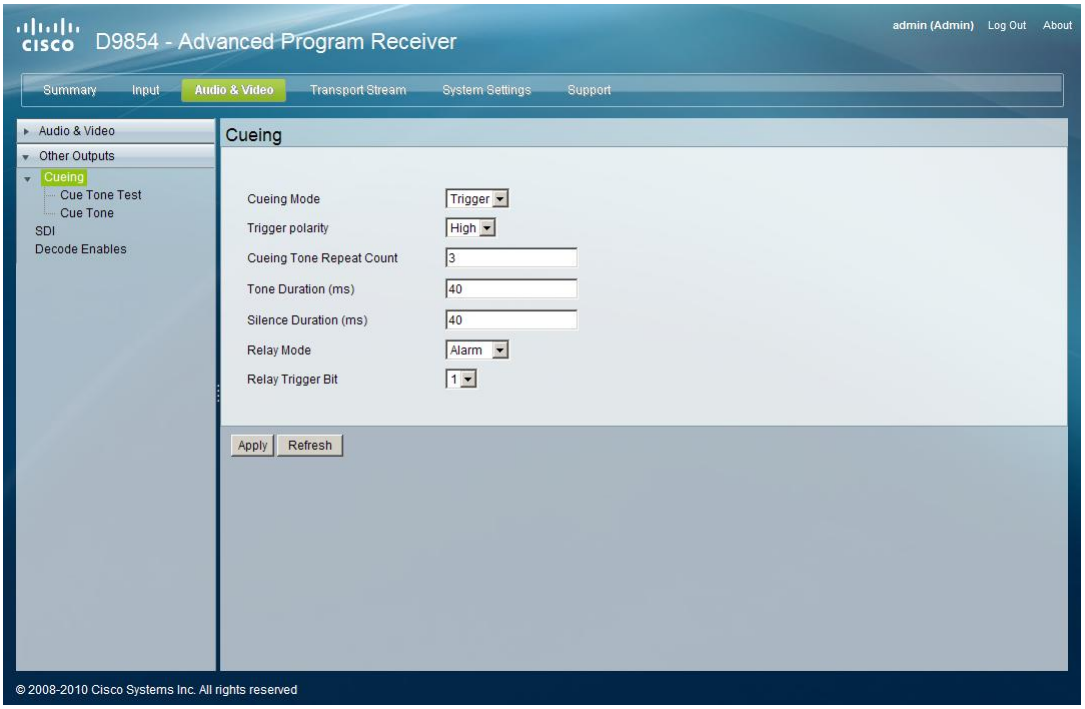
11 The **Audio Status** section displays the current audio settings. The following table describes the audio status information:

Audio Status	Description
Audio	Displays the current audio deocder status.
PID	Indicates the program PID number (1 to 8191).
Language	Indicates the language code.
Format	Indicates the format of the audio input stream.
Bit Rate	Displays the bit rate of the audio input stream, in kbps.
SFR	Displays the sample rate of the input audio stream, in kHz (32, 44.1, or 48 KHz).
Buffer	Indicates the buffer level of the input audio stream, in bytes.

12 Click **Apply**.

Setting up Cueing Parameters

1 From the user interface of the D9854, click **Audio & Video > Other Outputs > Cueing**. The Cueing page is displayed.



2 In the **Cueing Mode** drop-down menu, select whether cueing output should be DTMF tones or trigger pins.

Tones are standard Dual-Tone Multi-Frequency (DTMF) tones. The tones are generated at the Cue Tone/Relay output on the rear panel of the receiver.

Trigger refers to open-collector pins which can be generated at the Cue Tone/Relay output on the rear panel of the receiver.

3 If Trigger was selected as the Cueing Mode, select the pin polarity in the **Trigger Polarity** drop-down menu. Select High for the pins to act as open or floating collectors on an active cueing signal and as ground on an inactive signal. Select Low for the pins to act as ground on an active cueing signal and as open or floating collectors on an inactive signal.

4 If the Cueing Mode was set to Tone, set the number of consecutive tone sequences to be generated in the **Cueing Tone Repeat Count** field. Values greater than 1 are provided when a scenario demands repetition to ensure that the ad insertion equipment receives the signal. You can enter 1, 2, or 3. The default is 3.

5 If the Cueing Mode was set to Tone, enter the **Tone Duration** of each tone, in milliseconds, in the range from 0 to 80. The default is 40.

6 If the Cueing Mode was set to Tone, enter the **Silence Duration** of each silence between tones, in milliseconds. The duration is in the range from 0 to 80. The default is 40.

7 Select the **Relay Mode** that can be programmed to respond to an Alarm state, Warning statue, or the state of one of the eight cue trigger pins. The response is generated at the Cue Tone/Relay output on the rear panel of the receiver. The following table shows what the possible field settings are and their relationship to the receiver output:

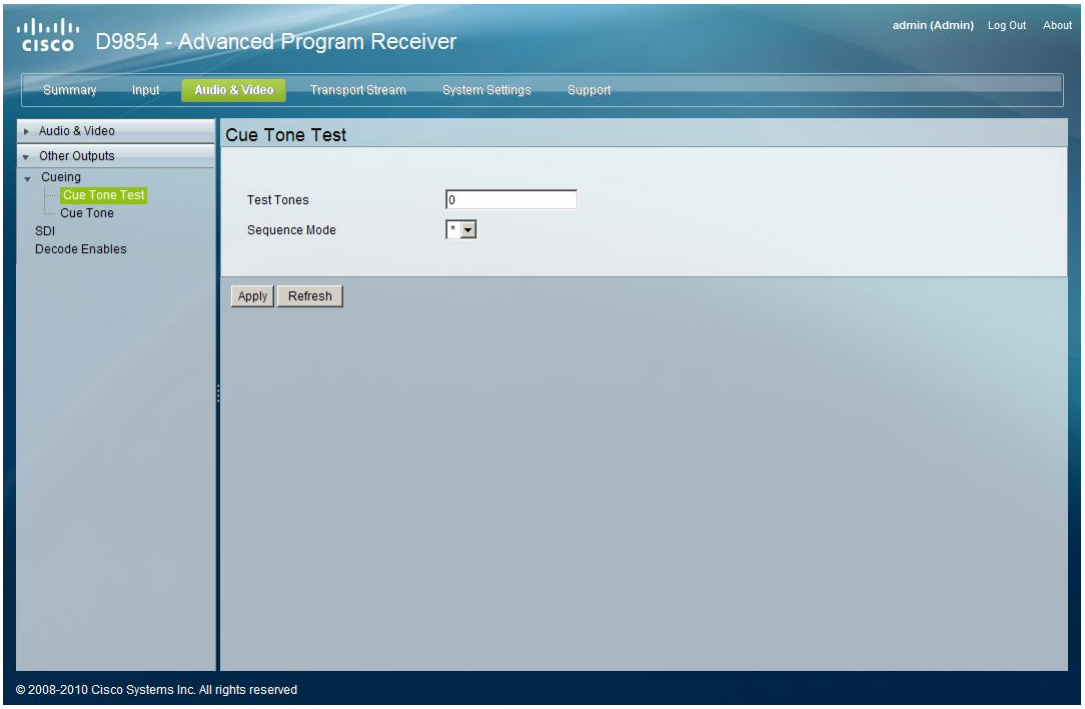
Relay Mode	**Condition**	**Relay Contact**	
		NC - C	**C-NO**
Alarm	Unit Power Off	Open	Close
	Alarm State	Open	Close
	No Alarm	Close	Open
Trigger	Active (selected in PNC)	Close	Open
	Inactive	Open	Close

8 If the Relay Mode was set to Trigger, select the cue trigger bit/pin that will activate the relay in the **Relay Trigger Bit** drop-down menu (1 to 8).

9 Click **Apply**.

Setting up Cue Tone Test

1 From the user interface of the D9854, click **Audio & Video > Other Outputs**, expand **Cueing** and then click **Cue Tone Test**. The Cue Tone Test page is displayed.



2 In the **Test Tones** field, specify the three digit tone sequence. You can enter a value between 000 and 999.

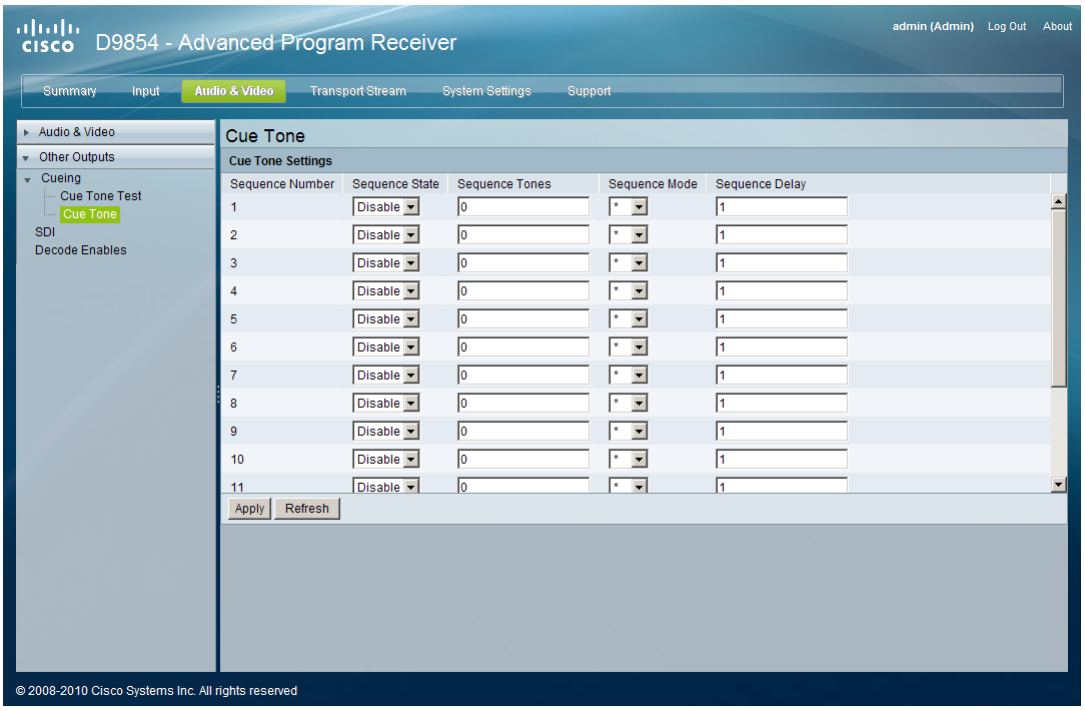
3 In the **Sequence Mode** drop-down list, select the tone sequence mode. The following describes the available options:

- * - Start tone only
- # - End tone only
- */# - Start and end tones. The end tone is signaled after waiting the time specified in Delay(sec).

4 Click **Apply**.

Setting up Cue Tones

1 From the user interface of the D9854, click **Audio & Video > Other Outputs**, expand **Cueing** and then click **Cue Tone**. The Cue Tone page is displayed.



2 The **Sequence Number** lists the tone sequences. The receiver supports up to 16 tone sequences. You can configure the state, tones, mode, and delay for each tone sequence.

3 Set the **Sequence State** (Enabled or Disabled) of the current tone sequence. When disabled, no cue tone is output.

4 In the **Sequence Tones** field, set the three digit tone sequence (1 to 999).

5 Select the tone **Sequence Mode**.

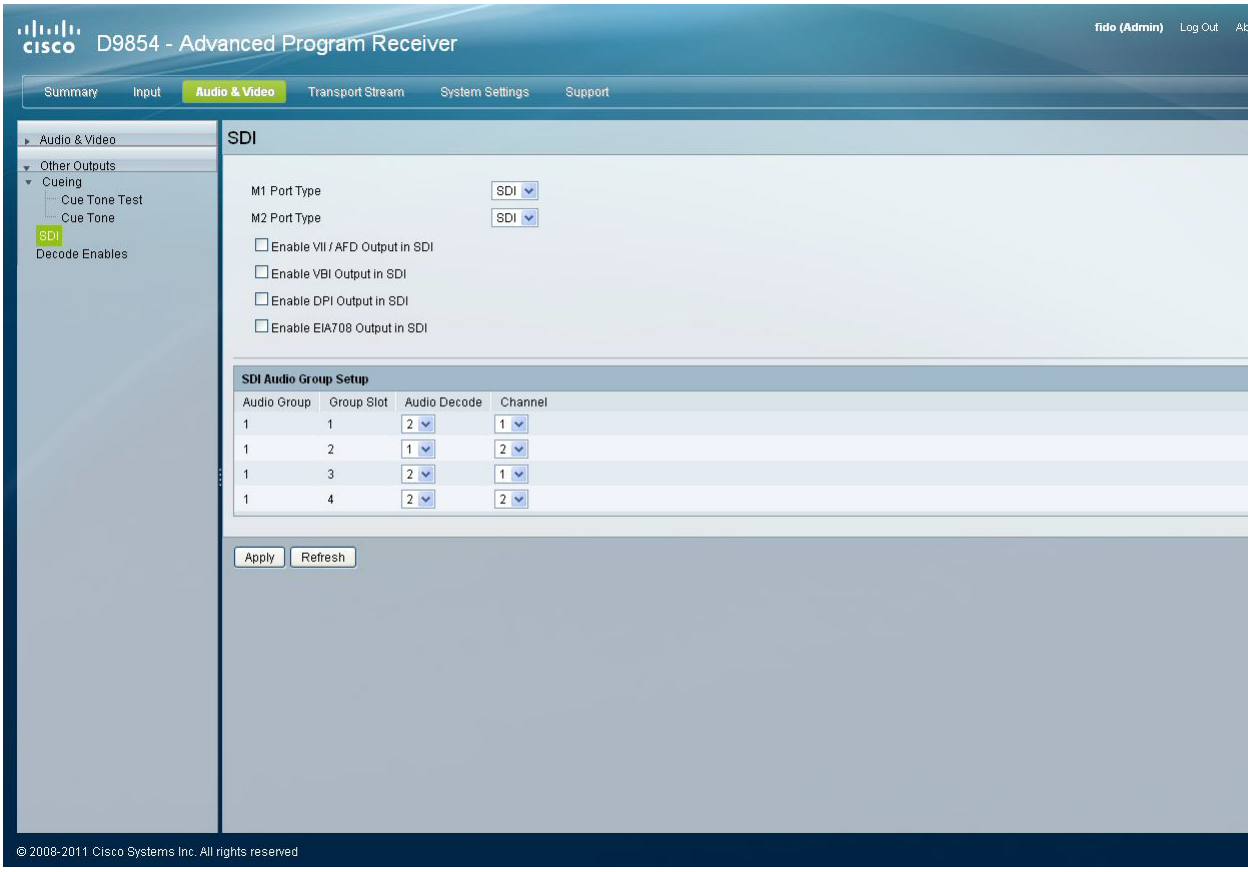
Select * for start tone, # for the end tone, and */# for the start and end tones. The end tone is signaled after waiting the time specified in **Sequence Delay**.

6 If the **Sequence Mode** was set to */# (Start/Stop), set the **Sequence Delay**, in seconds, between the start and stop sequences. You can enter a value in the range from 1 to 255. The default is 30.

7 Click **Apply**.

Setting up SDI

1 From the user interface of the D9854, click **Audio & Video > Other Outputs > SDI**. The SDI page is displayed.



2 Set the **M1 Port Type** and **M2 Port Type** (SDI or ASI).

3 Select **Enable VII/AFD Output in SDI**, **Enable VBI Output in SDI**, **Enable DPI Output in SDI**, and/or **Enable EIA708 Output in SDI** to enable the VII (video index)/AFD, VBI, DPI, and/or EIA-708 outputs in SDI.

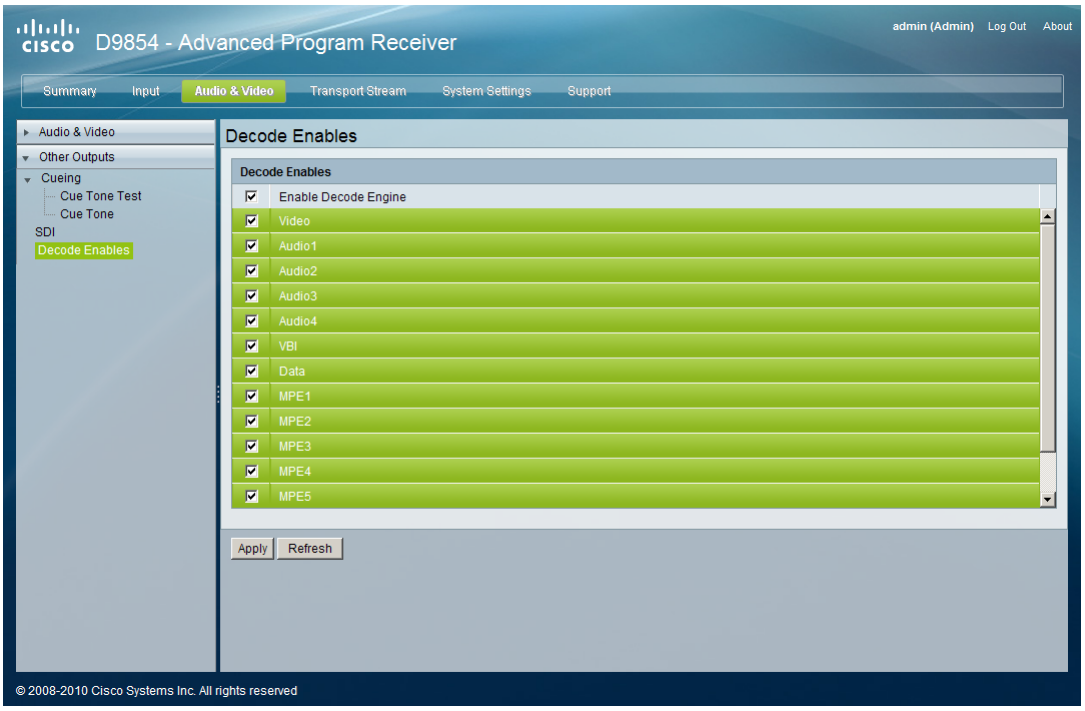
4 In the **SDI Audio Group Setup** section, you can select the audio channel group and audio channels from the available audio group. The following describes the parameters:

SDI Audio Group Setup	**Description**
Audio Group	Displays the channel group (1 to 4).
Group Slot	Displays the HANC position (1 to 4).
Audio Decode	Select the audio source (1 or 2).
Channel	Select the source audio channel (1 or 2).

5 Click **Apply**.

Setting up Services to be Decoded by the D9854 Receiver

1 From the user interface of the D9854, click **Audio & Video > Other Outputs > Decode Enables**. The Decode Enables page is displayed.



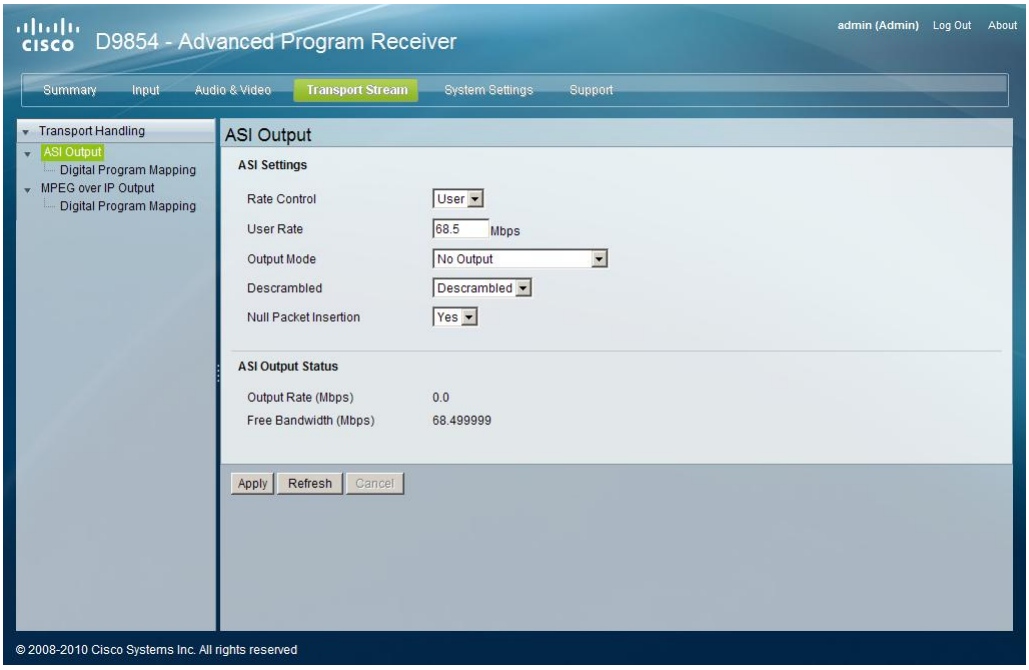
2 Select the services to be decoded by the receiver. Select/de-select **Enable Decode Engine** to select/de-select all the services in the list.

3 Click **Apply**.

Configuring Transport Stream Information

Configuring the ASI Output

1 From the user interface of the D9854, click **Transport Stream** > **Transport Handling** > **ASI Output**. The ASI Output page is displayed.



Note: Any changes made to the ASI DPM values will automatically change the Output Mode to Full DPM Control, unless the output mode is set to No Output.

2 Select the output **Rate Control**. The following table describes the affect each of the settings has on the output bit rate:

Rate Control	Description
Auto	The output rate follows that set by the uplink. The output rate will be the same as the input rate (including all null packets). This means the output bit rate is determined automatically based on the input source symbol rate and FEC value.
User	The output rate is specified by the **User Rate** field. It is determined by the user setting regardless of the input source.

3 If the Rate Control was set to User, set the maximum output bit rate in the **User Rate** field. This setting is used when the signal source is RF or ASI and allows you to set the output bit rate to a value expected by equipment connected to the ASI output.

You can enter a range from 0 to 206 Mbps.

Note: Output data may be lost if this bit rate is set to a value less than the actual signal bit rate.

4 Select the DPM **Output Mode** for the current output. With the exception of No Output, selecting a mode will configure the DPM settings to achieve the specified behavior. In this way, they act as DPM presets. Any changes then made to the DPM settings will switch the mode to Full DPM Control. It is highly recommended to use either one of these basic modes, or, for advanced setup, enter the DPM mapping before setting the Output Mode.The following table describes each mode:

Output Mode	Description
No Output	No ASI output will be generated and the ASI port will be disabled.
Passthrough	The output will be identical to the input. All PEs will be set to Pass and other DPM settings will also be set.
Service Channels Only	This is similar to Passthrough, except that only channels applied to program entries are available on the output.
MAP Passthrough	The output will be identical to the input, except that channels and PIDs will be mapped using the DPM settings.
MAP Service Channels Only	This is similar to MAP Passthrough, except that only channels applied to program entries are available on the output.
Full DPM Control	The output will be generated according to the DPM settings. This is a manual control setting.

5 In **Descrambled** drop-down, select whether the output will be descrambled if the input is scrambled. The following table describes the available options:

Descramble	Description
Scrambled	The output channel will remain scrambled even if the PE is authorized and can descramble the channel.
Descrambled	Descrambles the output channel, and passes in-the-clear channels.

6 Select Yes to insert null packets into the output to maintain output at a constant bit rate in the **Null Packet Insertion** drop-down menu. Otherwise, select No.

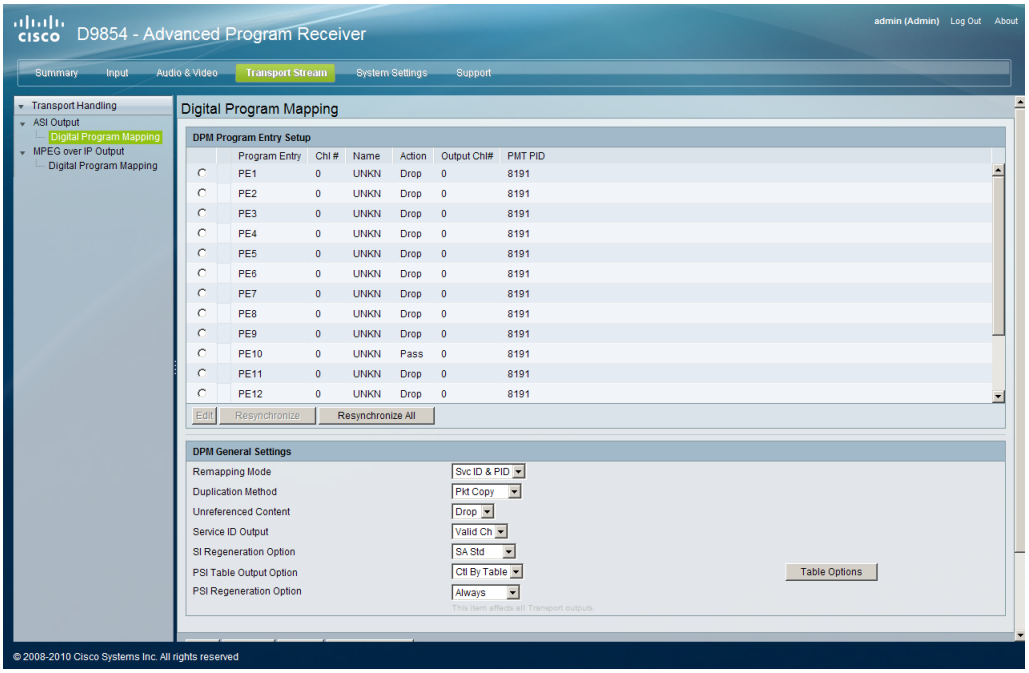
7 The **ASI Output Status** section displays the current **Output Rate** (0 to 213 Mbps) and the available bit bandwidth (**Free Bandwidth**), in Mbps.

8 Click **Apply**.

Configuring the DPM ASI Details

Note: The following procedure defines all the available fields. For a typical setup of the DPM, see ***Typical set up for Digital Program Mapping (DPM)*** (on page 188).

1 From the user interface of the D9854, click **Transport Stream > Transport Handling**, expand **ASI Output** and then click **Digital Program Mapping**. The Digital Program Mapping page is displayed.



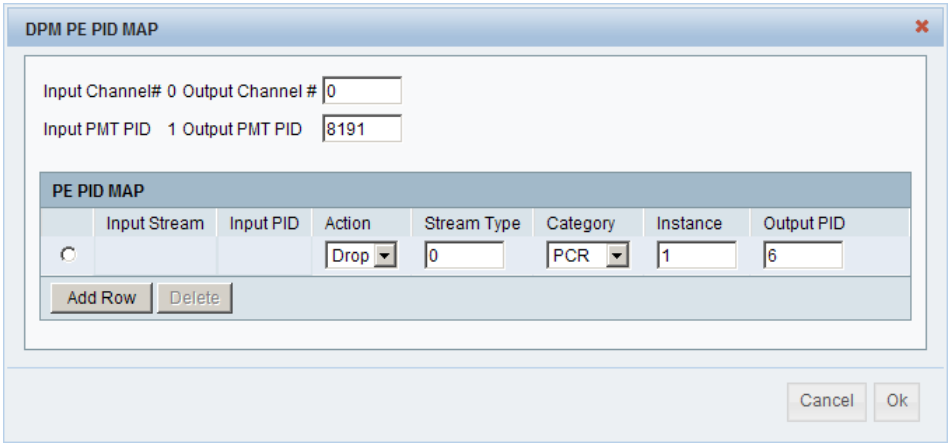
2 For each DPM **Program Entry**, it displays the input channel number (**Chl #**) and channel **Name**.

Note: Any changes made to the DPM Program Entry Setup configuration automatically changes the Output Mode to Full DPM Control in the ASI Output page.

3 Select the program entry you want to edit.

4 In the **Action** drop-down list, select the DPM program action for the PE (Pass, Map, or Drop). The default is Pass.

5 Click **Edit**. The DPM PE PID MAP window opens.



6 Enter the **Output Channel #** you want to map to the input channel (**Input Channel #)**. This value is only used if the PE Action was set to Map. You can enter a range from 1 to 65535.

7 Enter the **Output PMT PID** you want to map to the Input PMT PID.

8 In the **PE PID MAP** section, you can select an existing PID mapping entry you want to modify or click **Add Row** to create a new entry.

9 The **Input Stream** indicates the input service that will be mapped by the current entry. The **Input PID** displays the input PID (1 to 8190) that will be mapped by the current entry. This is only used if the **Action** is set to Map.

10 In the **Action** drop-down, select the action to perform on the current PID. The Drop action is always performed, but the Map option is only applied if the PE action is Map and the **Remapping Mode** is Svc ID & PID.

Action	**Description**
Drop	The service selected by the Category and Instance will be mapped to the specified PID. This is only applied if the PE action is Map and the Remapping Mode is Svc ID & PID.
Map	The service selected by the Category and Instance will be removed from the PMT and the output stream.

11 Enter a **Stream Type** to map within a PE to a specified PID (0 to 255).

12 Select the **Category** or service to configure. If an input service matches this type and Instance, then the Action will be applied. This value is only used if the Action is set to Map. The categories are: UNKN, CDT, LSDT, DATA, TTX, MPE, DPI, VBI, SUBT, AUD, VID, PCR or INVL.

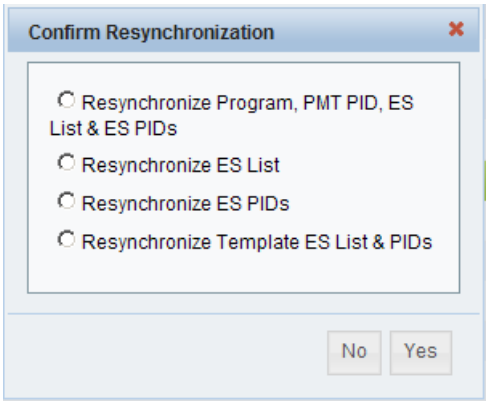
13 Enter the **Instance** (1 to 64) of the service specified by Category to configure. If an input service matches this type and instance, then the Action will be applied.

14 If Action is set to Map, select the **Output PID** number (0 to 8192).

15 Click **OK**.

16 To remove a PID mapping, select the entry you want to remove and click **Delete**.

17 In the DPM Program Entry Setup section, each PE output can be synchronized to its input according to one of the four output modes. Select the program entry you want to synchronize and then click **Resynchronize** or click **Resynchronize All** to synchronize the inputs to the outputs according to the service assignments only. The Confirm Resynchronization window is displayed.



18 Select whether you want to synchronize the PE output according to the services and then the PIDs assigned to each service, services only, PIDs only, or to synchronize using a template.

Map Mode	Description
Resynchronize Program, PMT PID, ES List & ES PIDs	The receiver will synchronize the PE output according to the services and then the PIDs assigned to each service.
Resynchronize ES List	The receiver will synchronize the PE output according to the available input services only, and ignore the input to output service PID mapping.
Resynchronize ES PIDs	The receiver will synchronize the PE output according to the input PIDs only, and ignore the service assignment categories/names.
Resynchronize Template ES List & PIDs	Allows you to preset the input to output mapping of a PE according to the preset template. This is helpful in pre-configuring any number of PEs for future use.

19 Click **Yes**.

20 In the **DPM General Settings** section, you can configure ASI DPM transport stream settings.

21 In the **Remapping Mode** drop-down, select the DPM mapping mode for this output. The following table describes each mode:

Map Mode	Description
Svc ID	The elementary PIDs are not changed. Channels are remapped by changing their PSI references. When this mode is selected, PE detailed PID mapping in the PID menu are ignored.

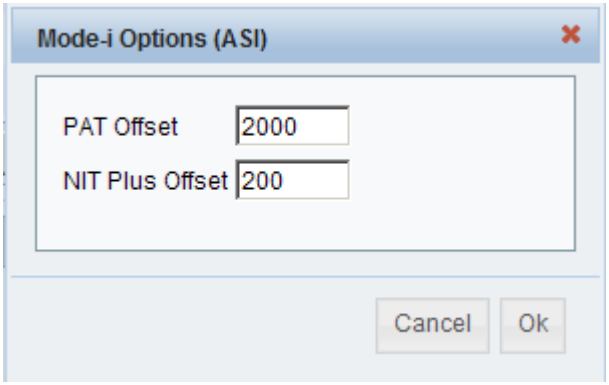
Map Mode	Description
Svc ID & PID	Channels and the elementary service PIDs can be mapped in the DPM PE PID MAP window.

22 Select the **Duplication Method** for how to handle duplicate programs. This setting is only used if Remapping Mode is set to Svc ID & PID. The following table describes the each duplication method:

Duplic Mode	Description
PSI Remap	Every input PID can be mapped to only one output PID. If PID mapping conflicts exist, DPM will use the Precedence Rule to decide which output PID to use. All PMTs using the input PID will be updated to reference the output PID specified by the winner.
Pkt Copy	An input PID can be mapped to multiple output PIDs. The PID will be duplicated as many times as needed (up to a certain hardware limitation). **Note:** This may increase the output bandwidth of the stream.

Pkt Copy is recommended for most applications.

23 Select the action to use for **Unreferenced Content**. Unreferenced content is the remainder of the transport stream that is not filtered by the program entries. Select Drop (default) to drop all unreferenced content. Select Pass to pass all unreferenced content to the output unchanged. Select **Mode-i** and then click **Mode-i Options** to open the Mode-i Options (ASI) window.



Mode-i is a customer-specific mode, only to be used if directed by Cisco. For more information, contact Cisco customer support.

24 In the **Service ID Output** drop-down, select whether the receiver should always generate PSI tables for the Mapped PE even if the selected input channel is not available, or for only valid service channels/IDs. The following table describes each service ID:

Svc ID	Description
Valid Ch	Only transmits the PSI tables for the mapped program if the program exists on the input stream.

Svc ID	Description
All Ch	Transmits the PSI tables for the mapped program even if the program does not exist in the input stream. All Ch is only valid if the PAT, NIT, SDT and PMT are set to Regenerate.

25 If PSI Table Output Option is set to Ctrl by Table, select the regeneration rate for those PSI tables being regenerated in the **SI Regeneration Option** drop-down menu. This parameter is only used if Remapping Control is set to None. The following table describes each PSI rate:

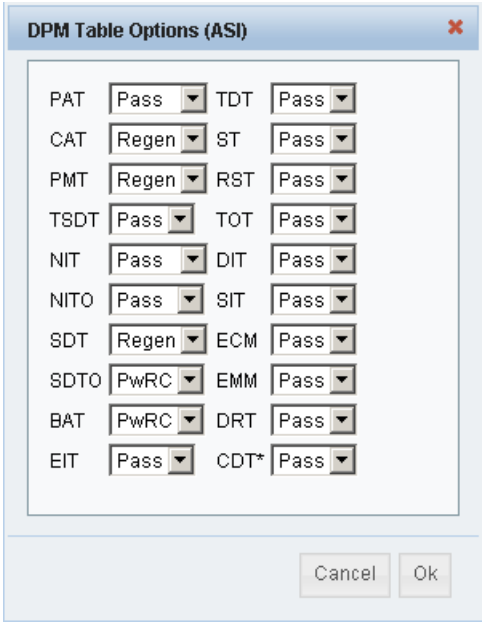
PSI Rate	Description
Auto	Matches the generated PSI tables' output rate to the incoming rate.
MPEG Min	Transmits the generated PSI tables on the longest intervals that are allowed by MPEG standard.
SA Std	Transmits the generated PSI tables based on PowerVu standard intervals.

26 In the **PSI Table Output Option** drop-down menu, select the action to perform on the PSI tables for the output stream. The following table describes each option:

PSI Options	Description
Pass All	Transmits the incoming PSI Tables as is; does not modify the content and rate. The SI Regeneration Option and table settings are ignored.
Drop All	Does not transmit any PSI Tables. The SI Regeneration Option and table settings are ignored.
Ctl By Table	The operator can click **Table Options** to select the table specific output mode for each table.

27 In the **PSI Regeneration Option** drop-down, select whether to regenerate the PSI tables to the output. You can select Always to regenerate all the tables or As Needed to only regenerate the tables if the content has changed.

28 If Ctl By Table was selected as the **PSI Table Output Option**, click **Table Options** to configure the DPM table options. The DPM Table Options (ASI) window is displayed.



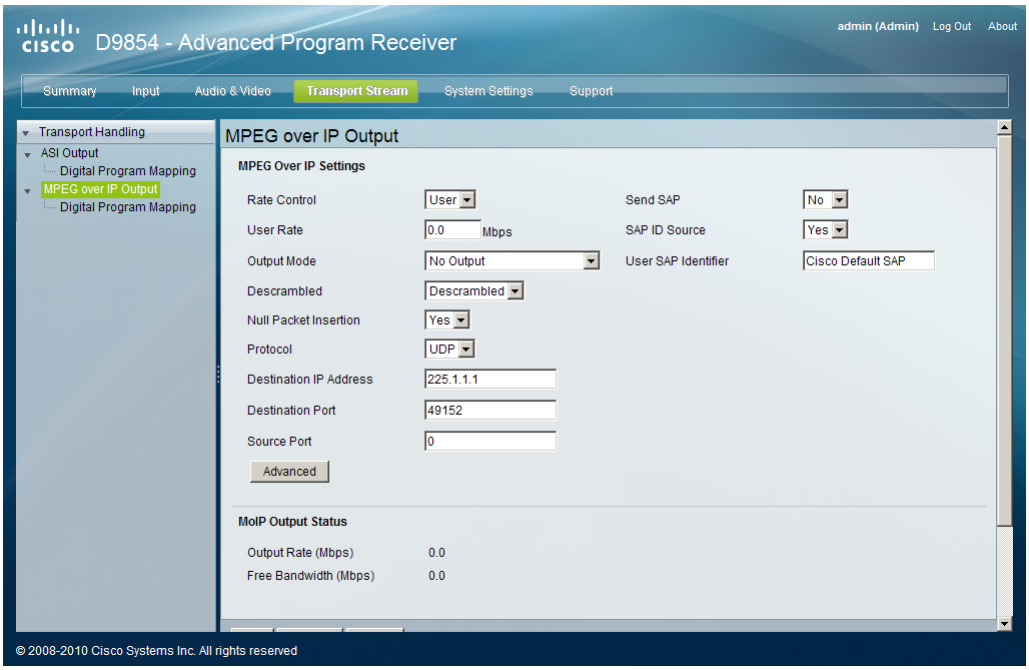
29 Select the tables which will be passed, dropped, regenerated or passed with rate control (PwRC) from the ASI Output. The CDT table is different from the other tables listed. For more information on the table options, see ***PSI Table Settings*** (on page 107).

30 Click **OK**.

31 Click **Apply**.

Configuring the MPEGoIP Output

1 From the user interface of the D9854, click **Transport Stream > Transport Handling > MPEG over IP Output**. The MPEG over IP Output page is displayed.



Note: Any changes made to the MOIP DPM values will automatically change the Output Mode to Full DPM Control, unless the output mode is set to No Output.

2 Select the DPM output **Rate Control**. The following table describes the affect each of the settings has on the output bit rate:

Rate Control	Description
Auto	The output rate follows that set by the uplink. The output rate will be the same as the input rate (including all null packets). This means the output bit rate is determined automatically based on the input source symbol rate and FEC value. This setting is used when the signal source is RF.
User	The output rate is specified as the Output Rate parameter. It is determined by the user setting regardless of the input source. Null packets are always inserted.

3 Enter the output **User Rate**, which is only used if **Rate Control** is set to User. If the output bit rate is less than the input, the output data will be partially or completely lost.

Note: Output data will be partially lost if the user-selected bit rate is set to a value that is less than the actual signal bit rate. This allows you to set the output bit rate to a value expected by equipment connected to the MPEGoIP output. You can enter a range from 0 to 206 Mbps.

4 Select the DPM **Output Mode**. The following table describes each mode:

Output Mode	Description
No Output	No MPEGoIP output will be generated.
Passthrough	The output will be identical to the input. The output channel will not be modified. PE/PID remapping options, PSI regeneration and User Rate are not supported in this mode.
Service Channels Only	Only service channels will be output.
MAP Passthrough	The output will be identical to the input, except that it will be generated using the DPM and PID mapping settings.
MAP Service Channels Only	Only service channels will be output according to the DPM and PID mapping settings.
Full DPM Control	The output will be generated according to the DPM settings on the Digital Program Mapping (MPEG over IP) page. This is a manual control setting.

5 In Descrambled drop-down, select whether the receiver should scramble the output even if it is authorized to receive the channel. The default is Descrambled.

Descramble Mode	Description
Scrambled	Scrambles the output channel even if the PE is authorized and can descramble the channel.
Descrambled	Descrambles the output channel, and passes in-the-clear channels.

6 Select Yes to insert null packets in the output stream under **Null Packet Insertion**. Otherwise, select No. Null packets are always inserted if the **Rate Control** is set to User.

7 Select the transport **Protocol** to be used for the output stream (RTP or UDP).

8 Enter the unicast (valid host IP only) or multicast **Destination IP Address** (224.0.0.0 to 239.255.255.255).

9 Select the **Destination Port** number (1 to 65535).

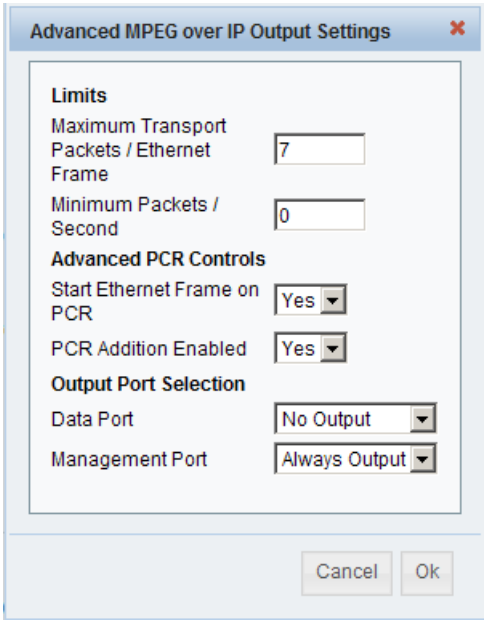
Note: If you selected RTP as the Protocol, you must select an even destination port number.

10 Enter the **Source** UDP **Port** number (1 to 65535).

11 In the **Send SAP** drop-down list, select whether to send Session Announcement Protocol messages (Yes or No).

12 Select whether to send the **SAP ID Source** (Yes or No), defined in the **User SAP Identifier** below. You can enter the SAP identifier (ID)/string, up to 49 characters.

13 Click **Advanced**. The Advanced MPEG over IP Output Settings window is displayed.



14 In the **Maximum Transport Packets/Ethernet Frame** field, enter the maximum number of transport packets per IP packet (1 to 7).

15 In the **Minimum number Packets/Second** field, enter the minimum number of transport packets per IP packet. You can enter 0 or 2 to 1000.

16 In the **Start Ethernet Frame on PCR** drop-down list, select whether to always transmit a new Ethernet Packet when a new Program Clock Reference (PCR) arrives (Yes or No).

17 In the **PCR Addition Enabled** drop-down list, select whether to add a PCR to the output stream (Yes or No).

18 In the **Data Port** and **Management Port** drop-down lists, select the Management and Data MOIP modes.

Note: If No Output was selected for Output Mode, updates to the port modes will have no effect.

The following describes each mode:

Data Port Management Port	**Description**
No Output	Disables the MPEGoIP interface.
Always Output	Always output data on the port.

19 Click **OK**.

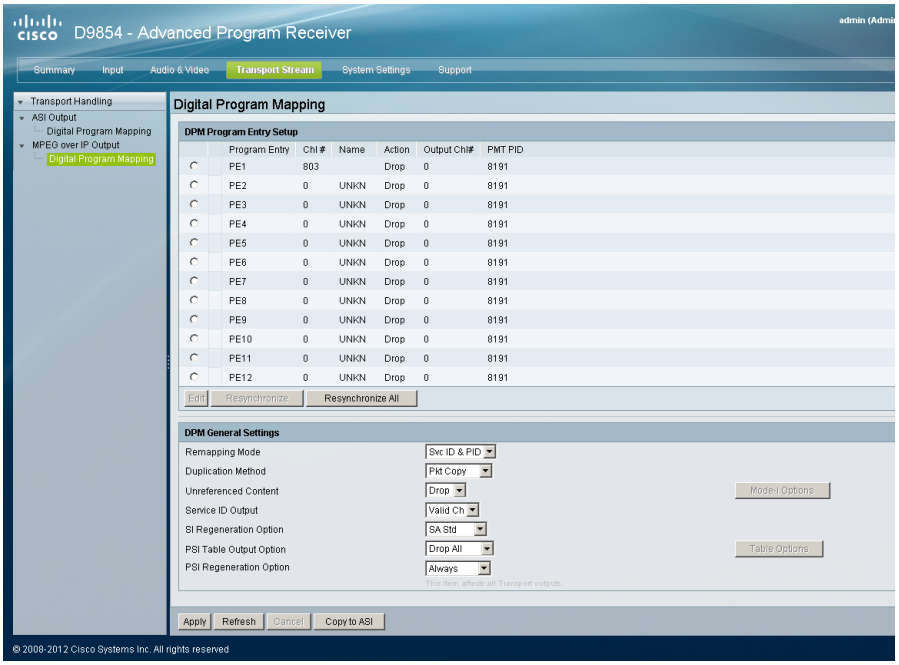
20 The **MoIP Output Status** section displays the current **Output** bit **Rate** (0 to 213 Mbps) and the available bit bandwidth (**Free Bandwidth**), in Mbps.

21 Click **Apply**.

Configuring the DPM MPEGoIP Output Details

Note: The following procedure defines all the available fields. For a typical setup of the DPM, see ***Typical set up for Digital Program Mapping (DPM)*** (on page 188).

1 From the user interface of the D9854, click **Transport Stream > Transport Handling**, expand **MPEG over IP Output** and then click **Digital Program Mapping**. The Digital Program Mapping page is displayed.



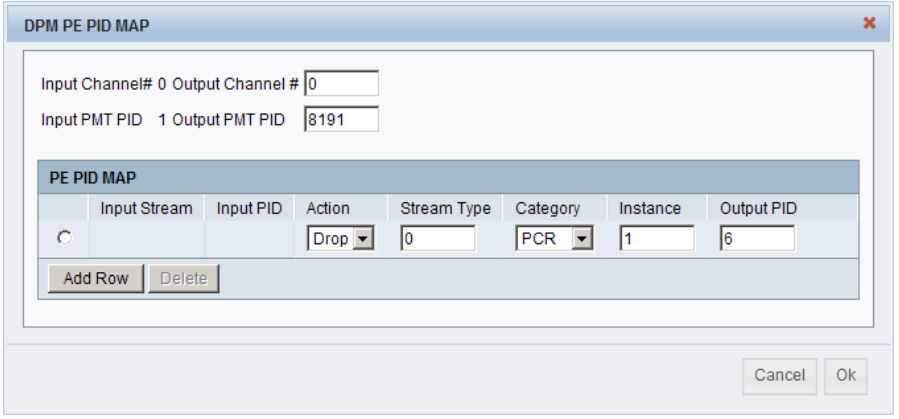
2 For each DPM **Program Entry**, it displays the input channel number (**Chl #**) and channel **Name**.

Note: Any changes made to the DPM Program Entry Setup configuration automatically changes the Output Mode to Full DPM Control in the MPEG over IP Output page.

3 Select the program entry you want to edit.

4 In the **Action** drop-down list, select the DPM program action for the PE (Pass, Map, or Drop). The default is Pass.

5 Click **Edit**. The DPM PE PID MAP window opens.



6 Enter the **Output Channel Number** you want to map to the input channel (Input Channel #). This value is only used if the PE **Action** was set to Map. You can enter a range from 1 to 65535.

7 Enter the **Output PMT PID** you want to map to the Input PMT PID.

8 In the **PE PID MAP** section, you can select an existing PID mapping entry you want to modify or click Add Row to create a new entry.

9 The **Input Stream** indicates the input program stream category/service type. The **Input PID** displays the input program PID (1 to 8190). It is only used if the PID Action is set to Map.

10 In the **Action** drop-down, select the DPM action for the PID associated with the PE.

Action	Description
Drop	Removes the service and its associated PMT reference from the transport output.
Map	Provides the flexibility to define all the outgoing PID numbers for a PE, including those not currently on transmission.

11 Enter a **Stream Type** to map within a PE to a specified PID (0 to 255).

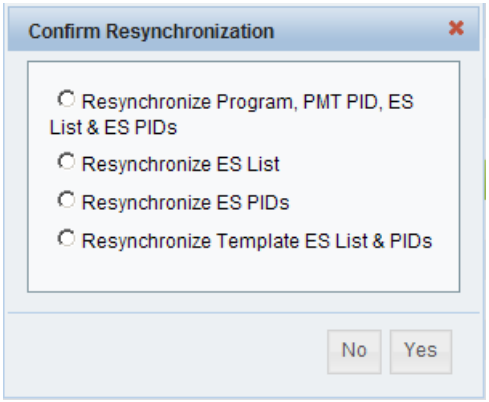
12 Select the output program stream **Category** or service type. This value is only used if the Action is set to Map. The categories are: UNKN, CDT, LSDT, DATA, TTX, MPE, DPI, VBI, SUBT, AUD, VID, PCR or INVL.

13 Enter the Output Stream **Instance** (1 to 64) and the **Output** program **PID** (0 to 8192).

14 To remove a PID mapping, select the entry you want to remove and click **Delete**.

15 Click **OK**.

16 In the **DPM Program Entry Setup** section, each PE output can be synchronized to its input according to one of the four output modes. Select the program entry you want to synchronize and then click **Resynchronize** or click **Resynchronize All** to synchronize all the listed PE outputs to its inputs. The Confirm Resynchronization window is displayed.



17 Select whether you want to synchronize services and PIDs, services only, PIDs only, or to synchronize using a template.

18 Click Yes.

19 In the DPM General Settings section, you can configure MPEGoIP DPM transport stream settings.

20 In the Remapping Mode drop-down, select the DPM map mode. The following table describes each mode:

Map Mode	Description
Svc ID	The elementary PIDs are not changed. Channels are remapped by changing their PSI references. When this mode is selected, PE detailed PID mapping cannot be edited.
Svc ID & PID	Channels and the elementary service PIDs can be mapped.

21 Select the Duplication Method of the DPM program, which modifies the PSI to duplicate a program and its content. This parameter is only used if Remapping Mode is set to Svc ID & PID. The following table describes the each duplication method:

Duplic Mode	Description
PSI Remap	Every input PID can be mapped to one output PID. If PID mapping conflicts exist, DPM will use the Precedence Rule to decide which output PID to use. All PMTs using the input PID will be updated to reference the output PID specified by the winner.
Pkt Copy	An input PID can be mapped to multiple output PIDs. The PID will be duplicated as many times as needed (up to a certain hardware limitation).

Pkt Copy is recommended for most applications.

Select the DPM action to use for **Unreferenced Content**. Unreferenced content is the remainder of the transport that is not filtered by the program entries. Select Drop (default) to drop all unreferenced content. Select Pass to pass all unreferenced content to the output unchanged.

22 In the **Service ID Output** drop-down, select whether the receiver should always generate PSI tables for the Mapped PE even if the selected input channel is not available, or for only valid service channels/IDs. The following table describes each service ID:

Svc ID	Description
Valid Ch	Only transmits the PSI tables for the mapped program if the program exists on the input stream.

Svc ID	Description
All Ch	Transmits the PSI tables for the mapped program even if the program does not exist in the input stream. All Ch is only valid if the PAT, NIT, SDT and PMT are set to Regenerate.

23 Select the SI Regeneration Option. This applies the PowerVu rates (consistent with the uplink). This parameter is only used if Remapping Control is set to None. The following table describes each PSI rate:

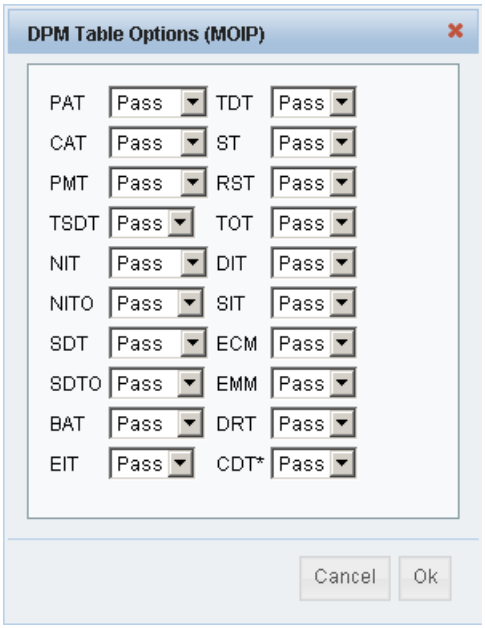
PSI Rate	Description
Auto	Matches the generated PSI tables' output rate as the incoming rate.
MPEG Min	Transmits the generated PSI tables on the longest intervals that are allowed by MPEG standard.
SA Std	Transmits the generated PSI tables based on PowerVu standard intervals.

24 The **PSI Table Output Option** drop-down allows the operator to specify which PSI tables to include in the program/output stream. The following table describes each option:

PSI Options	Description
Pass All	Transmits the incoming PSI Tables as is; does not modify the content and rate.
Drop All	Does not transmit any PSI Tables.
Ctl By Table	The operator can click Table Options to select the output mode for each table. The default table selections will be all pass, and only with CDT dropped.

25 Select the **PSI Regeneration Option** drop-down, select whether to regenerate the PSI tables. You can select Always or As Needed (only if the content has changed).

26 If Ctl By Table was selected as the **PSI Table Output Option**, click **Table Options** to configure the DPM table options. The DPM Table Options (MOIP) window is displayed.



27 Select the tables which will be passed, dropped, regenerated or passed with rate control (PwRC) from the ASI Output. The CDT table is different from the other tables listed. For more information on the table options, see ***PSI Table Settings*** (on page 107).

28 Click **OK**.

29 Click **Apply**.

Typical set up for Digital Program Mapping (DPM)

1 Verify that you are receiving a valid signal and that you have set up the channels that you want to pass, drop, or map.

2 From the user interface of the D9854, click **Transport Stream**.

3 Click **ASI Output** or **MPEG over IP Output**.

4 In the **Output Mode** drop-down, select Full DPM Control.

5 If necessary, select the **Descrambled** mode according to whether the program is to be scrambled or descrambled for downstream viewing or monitoring.

6 Click **Apply**.

7 Click **Digital Program Mapping** from the **ASI Output** or **MPEG over IP Output**. The Digital Program Mapping page is displayed.

8 In the DPM Program Entry Setup, click **Resynchronize All**. This copies the input services PIDs to the remapped output service PIDs.

9 Select the PE containing the channel you want to configure and click **Edit**. The DPM PE PID MAP window is displayed.

10 In the **Action** drop-down, select Pass, Drop, or Map.

11 Configure the input to output channel mapping in the **Category** drop-down. Video and PCR can be output on the same PID or different PIDs. If output on the same PID, they will appear identical to the input.

12 Click **OK**.

13 In the DPM General Setting section, set the following parameters:

Parameter	Description
Remapping Mode	Svc ID & PID
Duplication Method	Pkt Copy
Unreferenced Content	Drop
Service ID Output	Valid Ch/All Ch
PSI Table Output Option	Ctl By Table
PSI Regeneration Option	Always/As Needed

14 Click **Table Options**. The DPM Table Options (ASI) window is displayed.

15 Set the following parameters:

Parameter	Description
PAT	Regen
CAT	Regen
PMT	Regen
TSDT	Drop
NIT	Regen or Drop
NITO	Drop
SDT	Regen
SDTO	Drop
BAT	Drop
EIT	Drop
TDT	Pass
RST	Pass
TOT	Pass
DIT	Pass
SIT	Pass
ECM	Drop
EMM	Drop
DRT	Drop

Parameter	Description
CDT	Drop

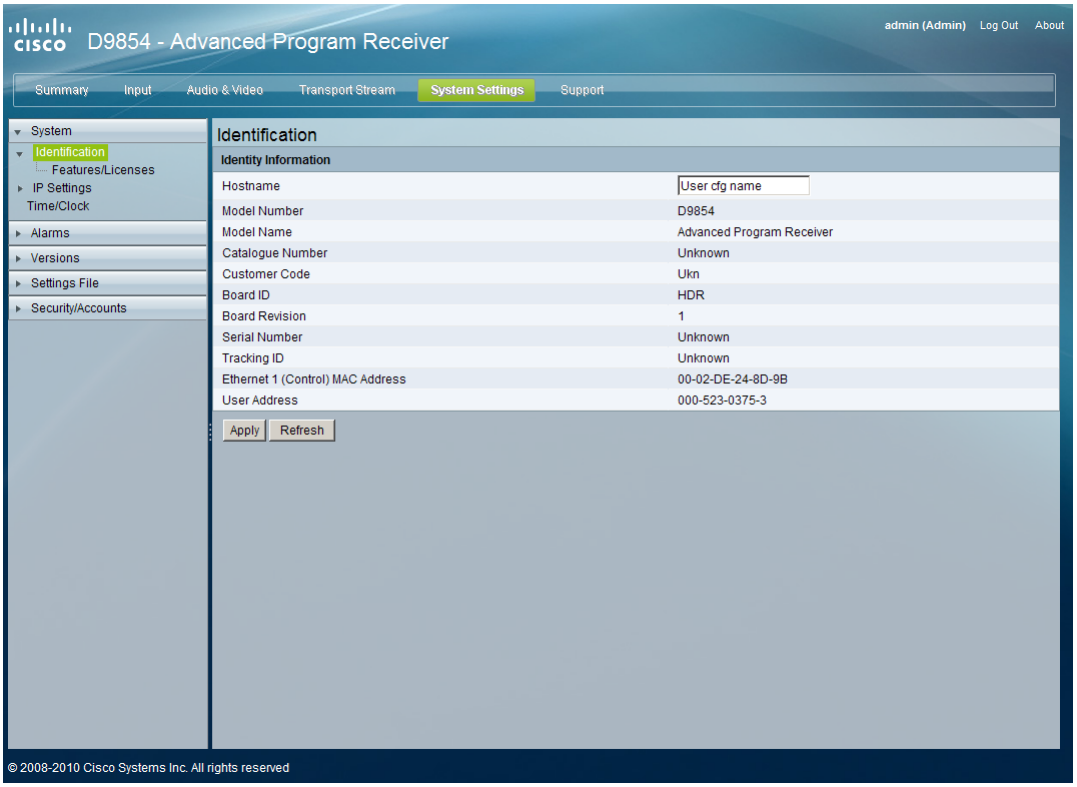
16 Click **OK**.

17 Click **Apply**.

Configuring System Settings

Viewing the System Identification

1 From the user interface of the D9854, click **System Settings > System > Identification**. The Identification page is displayed.

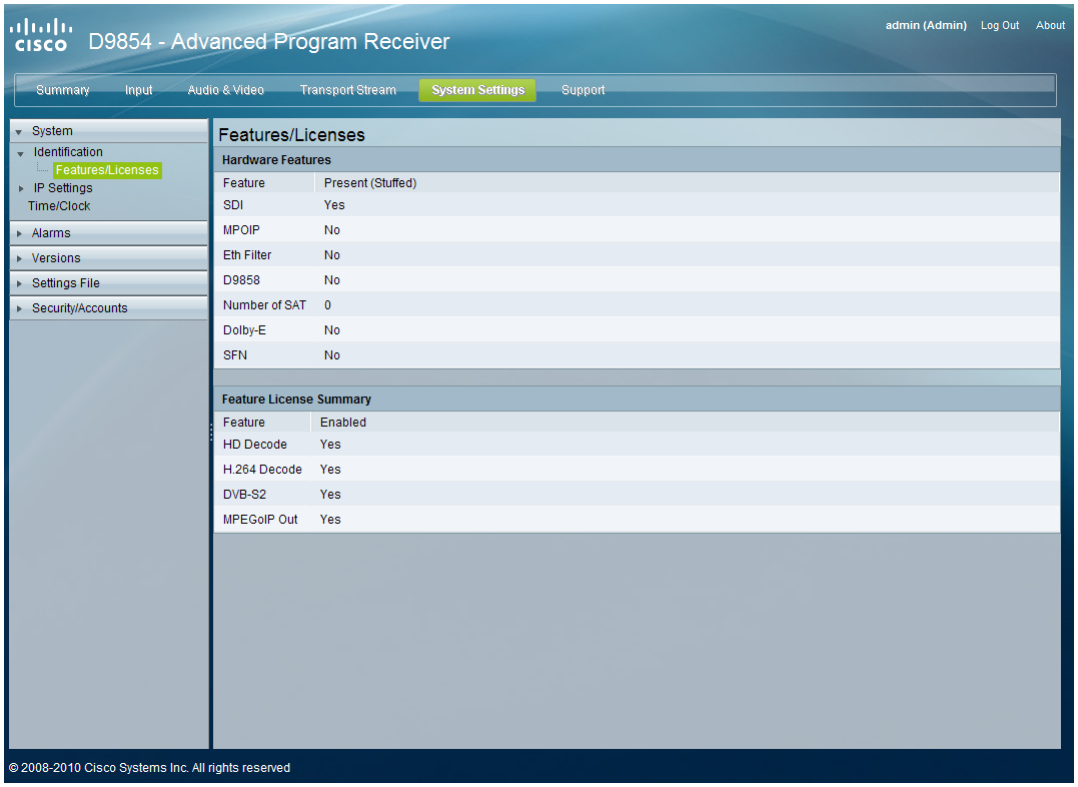


2 The System page displays the parameters associated with the D9854 system, such as serial number, model number, and user addresses.

3 You may optionally change the **Hostname** (device name) and click **Apply**.

Viewing Hardware Features and Base License Information

From the user interface of the D9854, click **System Settings > System**, expand **Identification** and then click **Features/Licenses**. The Features/Licenses page is displayed.



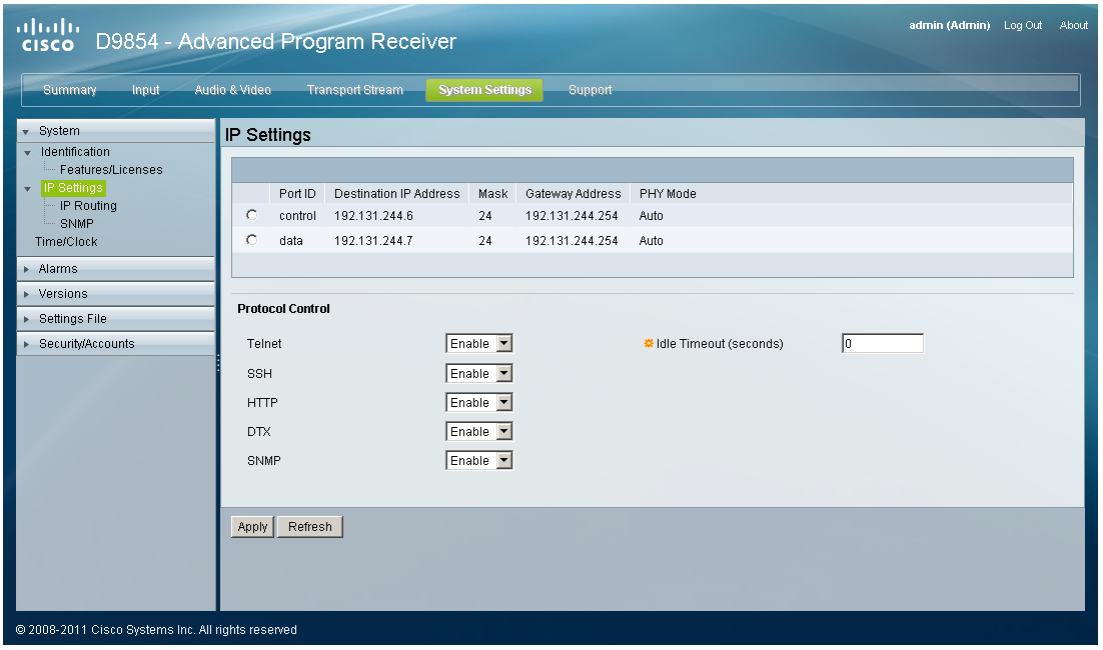
The **Hardware Features** section displays the hardware options installed in the current D9854 Advanced Program Receiver. For example, it indicates whether the receiver equipped with an SDI output and the number of transcoding paths.

The **Feature License Summary** section displays a list of software licenses for the D9854 Advanced Program Receiver and whether each of the software licenses are enabled or disabled.

Note: All software licenses are enabled for this release (temporarily). Any of these required licenses will need to be purchased from Cisco in subsequent software releases.

Setting up IP Information

1 From the user interface of the D9854, click **System Settings > System > IP Settings**. The IP Settings page is displayed.



2 In the top section, you can set the parameters for communicating with other equipment via the Ethernet Data and Management ports for IP applications and upgrading application software.

3 Select control or data settings and set the IPv4 **Destination IP Address** for the interface. The address is 12 digits in length (###.###.###.###).

4 Set the number of CIDR (Classless Inter-Domain Routing) bits in the network **Mask** (8 to 30).

5 Set the **Gateway Address** on the Network, used to expose the receiver to a WAN. The IP Address, IP Mask, and Gateway Address should be changed together, i.e., as a group. The following table shows the most commonly used Subnet mask values to enter for a chosen IP address mask, which will depend on the size of your network.

Mask	Subnet Mask
8	255.0.0.0
16	255.255.0.0
24	255.255.255.0

6 Select the speed and duplex type of the interface (**PHY Mode**). Select Auto for PHY to negotiate speed and duplex with other devices on the network, or select 10 HD (half-duplex), 10 FD (full-duplex), 100 HD, 100 FD, or 1000 FD to lock into a fixed mode. The default is Auto.

7 The **Protocol Control** section allows you to control remote access protocols to the IRD (Telnet, SSH, DTX, HTTP, and SNMP). In the **Telnet**, **SSH**, **HTTP**, **DTX**, and **SNMP** drop-down list, select Enable (default) to allow Telnet, Secure Shell, HTTP, DTX, and/or SNMP connections. Otherwise, select Disable.

The following lists the associated port numbers for each protocol:

Protocol	Port Number
Telnet	TCP port #23
SSH	TCP port #22
HTTP	TCP port #80
DTX	UDP port #8401
SNMP	UDP port #161

For information on accessing TCP/IP services, see ***Accessing TCP and UDP Services*** (on page 74).

8 In the **Idle Timeout (seconds)** field, enter the number of seconds before the session for all the enabled protocols will timeout due to inactivity.

9 Click **Apply**.

Setting up IP Routing Information

1 From the user interface of the D9854, click **System Settings > System**, expand **IP Settings** and then click **IP Routing**. The IP Routing page is displayed.

2 In the **MPE Data Filter Model** drop-down, set whether all the MPE data is forwarded to the network (Forward None or Forward All). It can forward up to 5 multicast IP addresses.

Note: This can only be configured on Port 2. Port 1 is fixed to Forward None.

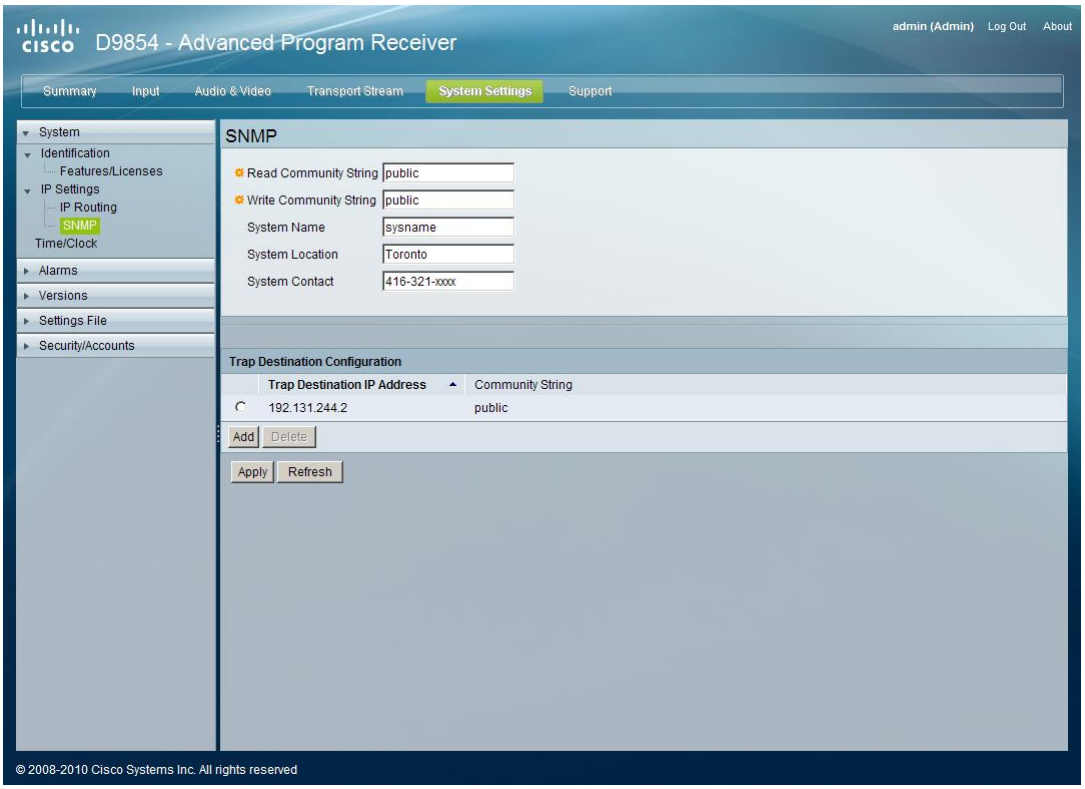
Note: The receiver supports up to a maximum of 10 Mbps throughput when forwarding 1500 byte packets.

3 The **Static Unicast Routing** and the **Static Multicast Filtering** sections are not supported in the current release.

4 Click **Apply**.

Setting up SNMP Information and Trap Destinations

1 From the user interface of the D9854, click **System Settings > System**, expand IP Settings and then click **SNMP**. The SNMP page is displayed.



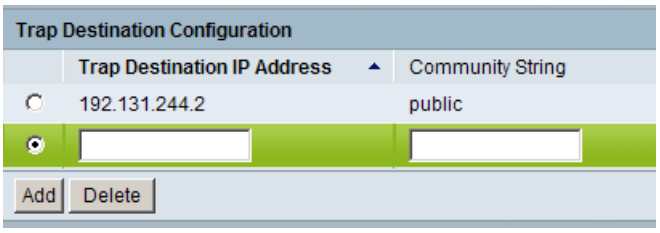
2 Set the **Read Community String** and the **Write Community String** to public (default) or custom string. Set the password to read/write data from a device and to display diagnostic traps/alarms. This is used when communicating with a device within an SNMP environment. To set a custom community string, enter an alphanumeric character string up to 31 alphanumeric characters in length identifying the password for the device.

Note: The community string is case-sensitive.

3 Enter the **System Name**, **System Location**, and **System Contact** information of the D9854 receiver. The system information is sent to the MIB browser, if applicable. The MIB Browser is a third party software used to manage SNMP requests. For more information, contact Cisco customer support.

To Add a Trap Destination

1 Click **Add** in the Trap Destination Configuration section.



2 Type the **Trap Destination IP Address** that sets the destination for SNMP trap messages for system events (i.e. fault messages). You can enter up to 12 characters (e.g., 155.128.100.200).

3 Type the **Community String** for the trap destination (IP Address entered above).

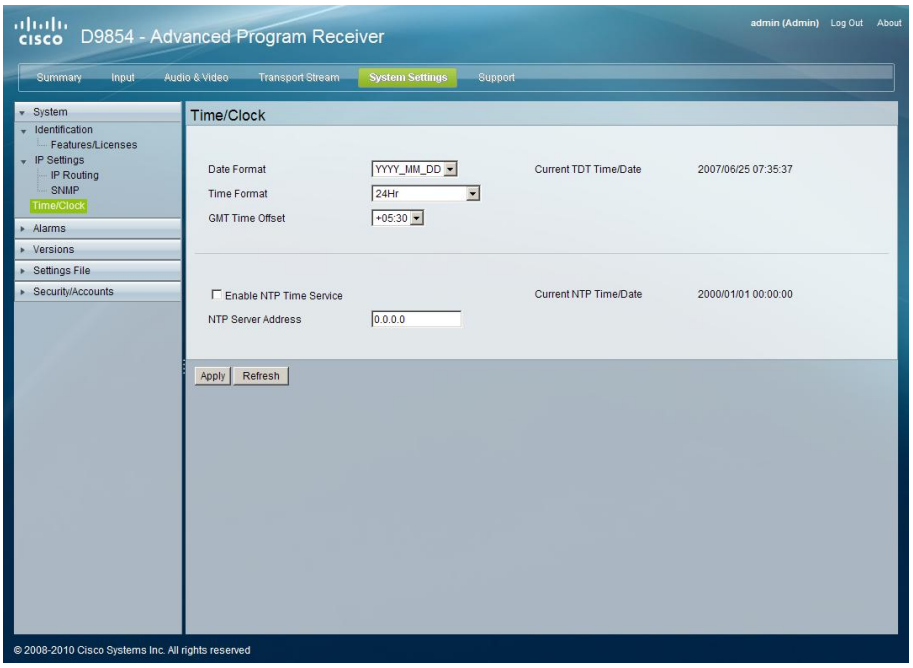
4 Enter public or custom string. The default is public. You can enter a string up to 35 characters.

5 To edit/delete an existing trap destination, select the trap destination entry by clicking on the radio button. Make the necessary changes, or click **Delete** to remove the address from the Trap Destination Configuration list.

6 Click **Apply**.

Configuring Time/Clock Settings

1 From the user interface of the D9854, click **System Settings > System > Time/Clock**. The Time/Clock page is displayed.



2 Set the **Date Format** of the receiver. The following formats are supported: YYYY_MM_DD, DD_MM_YYYY, MM_DD_YYYY.

3 Set the **Time Format** of the receiver. Current time information is normally broadcast as part of the transmitted digital signal. It is broadcast as GMT (Greenwich Mean Time) with date information in Modified Julian Date format. The following formats are supported: 24Hr, 24 Hr SuspendZero (the leading zero is dropped from the time), 12Hr, 12Hr SuspendZero (the leading zero is dropped from the time).

4 Set the **GMT Offset**. The local time is displayed using a time zone (GMT offset). If your local time is not GMT, you must set this time setting in the range from -12.0 to +12.0 hours in 0.5 hour increments.

5 The **Current TDT Time/Date** displays the current TDT (Time and Date Table) date and time received from the DVB stream. This is displayed as local time.

6 Select **Enable NTP Time Service** to periodically request NTP (Network Time Protocol) timestamps from the NTP server (NTP server address set below) and to synchronize its system (i.e., non-DVB related) time with the NTP server. This is displayed as local time.

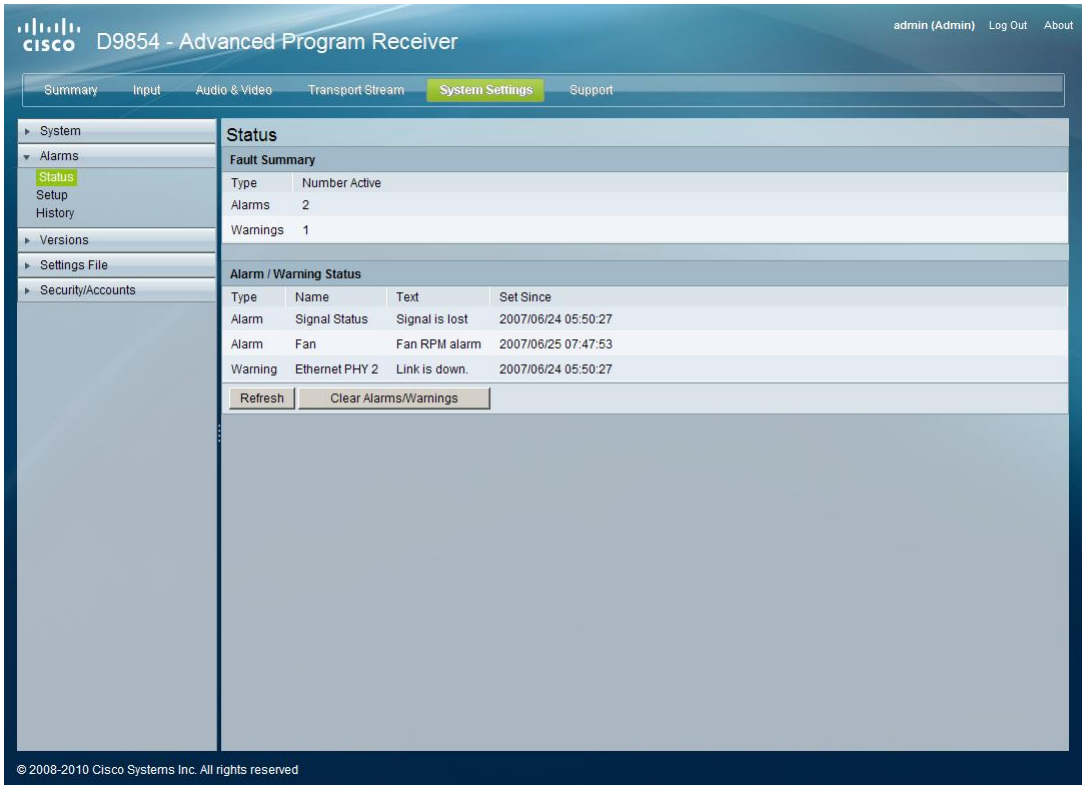
7 Set the **NTP Server Address**. If the NTP server address is not set (0.0.0.0), the IRD will not attempt to connect to the server.

8 Displays the current time in the **Current NTP Time/Date** if IRD receives a valid reply from the NTP server, adjusted for local time zone.

9 Click **Apply**.

Viewing the Alarm/Warning Status

From the user interface of the D9854, click **System Settings > Alarms > Status**. The Status page is displayed.



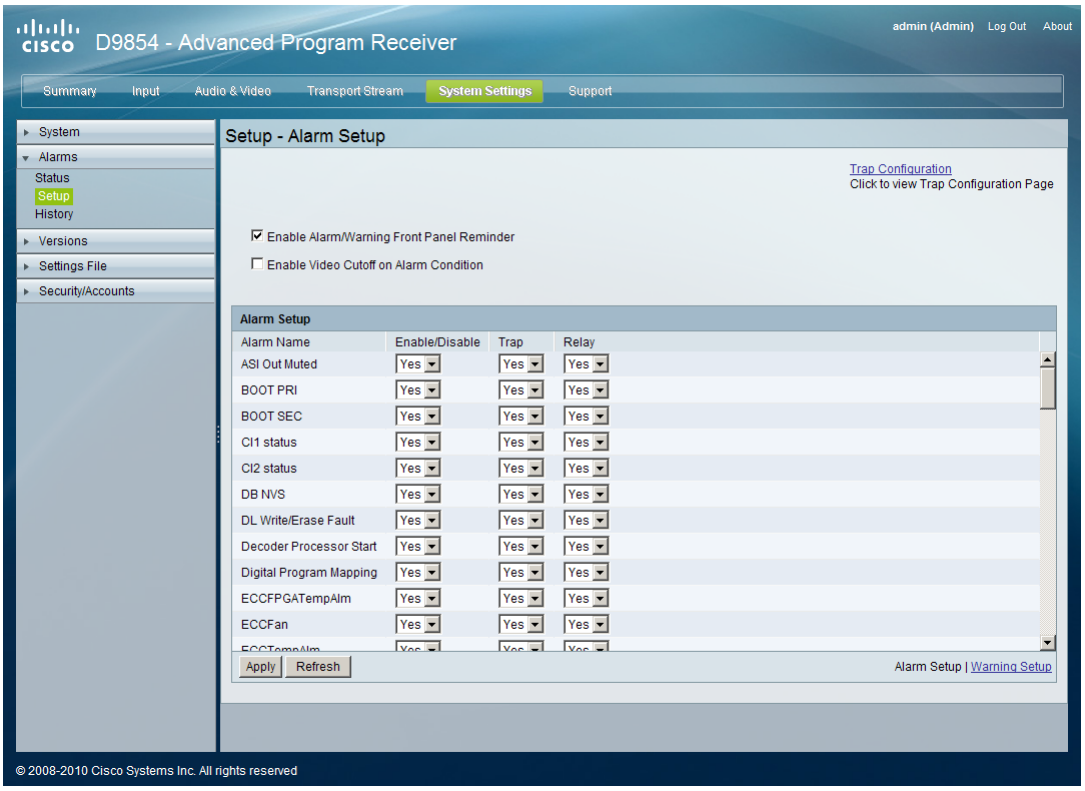
The Status page displays all the active event messages for the D9854 system. The **Fault Summary** section displays the **Type** of message (alarm or warning) and the number of alarms and warnings that have an active status (**Number Active**).

The following table shows the Alarm/Warning Status table information:

Status	**Description**
Type	Shows whether it is an alarm or a warning message.
Name	Name of the alarm or warning. For more information on alarm messages, refer to ***Messages*** (see "***D9854 Receiver Alarm Messages***" on page 227).
Text	Content of the message.
Set Since	Date and time of the alarm or warning.

Setting up Alarms and Warnings

1 From the user interface of the D9854, click **System Settings > Alarms > Setup**. The Setup - Alarm Setup page is displayed.



2 Select **Enable Alarm/Warning Front Panel Reminder** and the highest priority alarm flashes on the LCD display for a two-second interval every 10 seconds. The alarm will continue to flash periodically until it is either cleared or the **Enable Alarm/Warning Front Panel Reminder** is de-selected.

3 Select **Enable Video Cutoff on Alarm Condition** to cut off the video output if any enabled alarm is active on the receiver. When video is cut off, there will be no horizontal or vertical synchronization on the output. This is useful for downstream redundancy switching by detecting a loss of video signal.

4 Click on the **Trap Configuration** link to view and/or modify SNMP trap destinations. The link will open the SNMP page. For more information, see ***Setting up SNMP Information and Trap Destinations*** (on page 196).

5 The **Alarm Setup** section displays a list of the alarm/fault messages. For more information on alarm messages, refer to ***Messages*** (see "***D9854 Receiver Alarm Messages***" on page 227).

6 Set **Enable/Disable** to Yes and the alarm message will be reported. Set to No and the alarm is disabled and the Relay and Trap settings are ignored.

Note: Enable/Disable must be set to Yes for the Relay and Trap settings to be functional.

7 If current alarm is enabled, set **Trap** to Yes and the SNMP trap message will be sent when the alarm is set or cleared.

Note: No is a read only value that indicates the setting is Yes, but is currently being suppressed because the alarm is disabled (Enb is set to No).

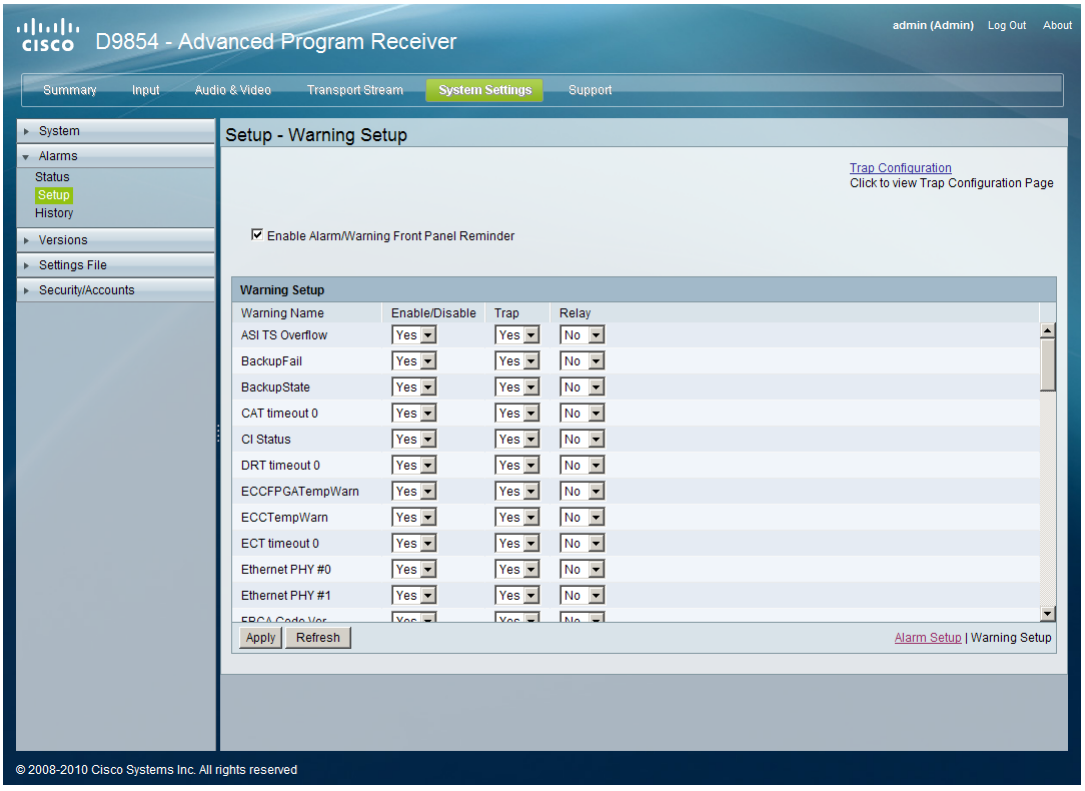
8 If current alarm is enabled, set **Relay** to Yes for the rear panel alarm relay to be triggered when the alarm is set or cleared.

Note: No is a read only value that indicates the setting is Yes, but is currently being suppressed because the alarm is disabled (Enb is set to No).

9 Click **Apply**.

To Set Up Warnings

1 From the Setup - Alarm Setup page, click on the Warning Setup link at the bottom left hand corner of the page. The Setup - Warning Setup page is displayed.



2 Select **Enable Alarm/Warning Front Panel Reminder** and the warning flashes on the LCD display for a two-second interval every 10 seconds. The warning will continue to flash periodically until it is either cleared or the **Enable Alarm/Warning Front Panel Reminder** is de-selected.

3 The **Warning Setup** section displays a list of the warning messages. For more information on warning messages, refer to ***Messages*** (see "***D9854 Receiver Alarm Messages***" on page 227).

4 Set **Enable/Disable** to Yes and the warning message will be reported. Set to No and the warning is disabled and the Relay and Trap settings are ignored.

Note: Enable/Disable must be set to Yes for the Relay and Trap settings to be functional.

5 If current warning is enabled, set **Trap** to Yes and the SNMP trap message will be sent when the warning is set or cleared.

Note: No is a read only value that indicates the setting is Yes, but is currently being suppressed because the warning is disabled (Enb is set to No).

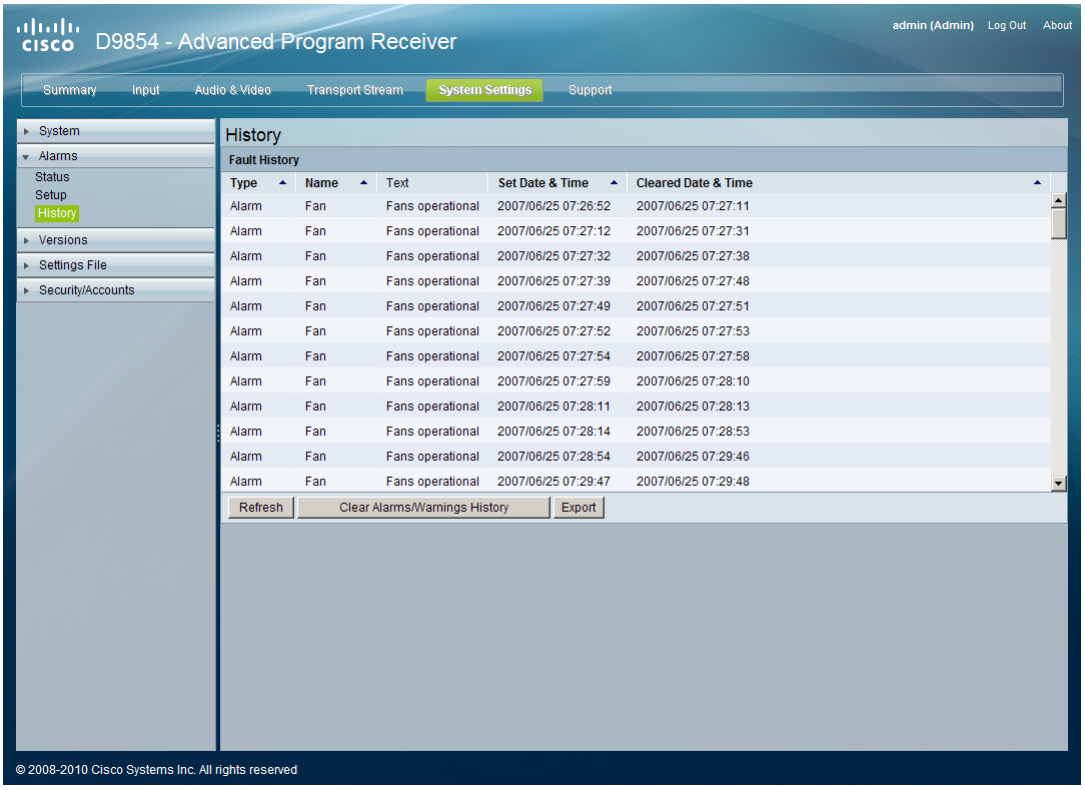
6 If current warning is enabled, set **Relay** to Yes for the rear panel alarm relay to be triggered when the warning is set or cleared.

Note: No is a read only value that indicates the setting is Yes, but is currently being suppressed because the warning is disabled (Enb is set to No).

7 Click **Apply**.

Viewing Alarm/Warning History

From the user interface of the D9854, click **System Settings > Alarms > History**. The History page is displayed.



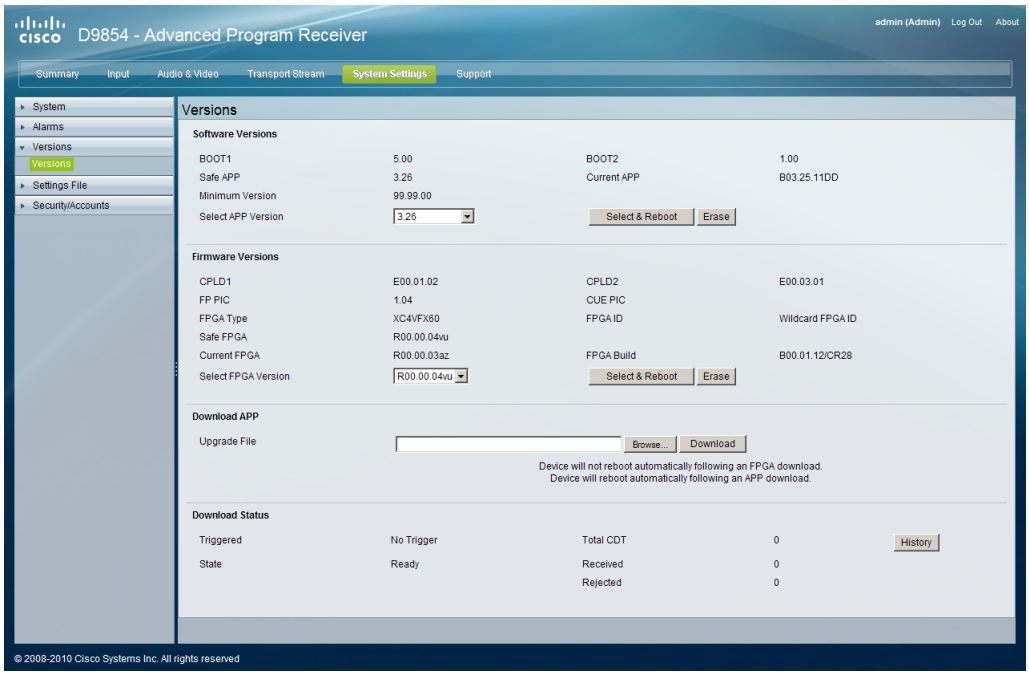
The Alarm and Warning History page displays all the past system event messages and their set and cleared dates and times. For more information on the alarm messages, refer to ***Messages*** (see "***D9854 Receiver Alarm Messages***" on page 227).

Click **Clear Alarms/Warnings History** to clear all existing history information.

Click **Export** to save the history information to your local hard drive as a *.csv* file.

Viewing Version Information

From the user interface of the D9854, click **System Settings > Versions > Versions**. The Versions page is displayed.



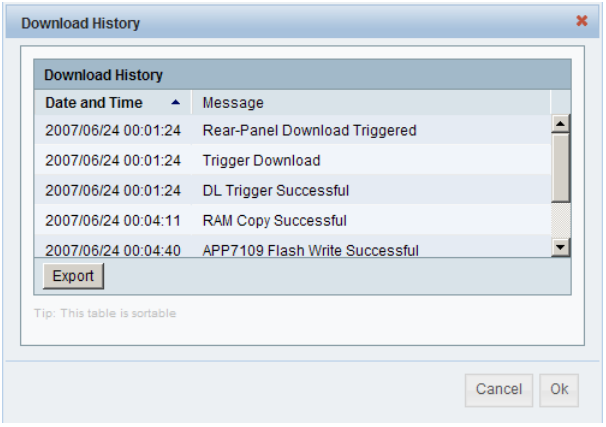
The **Software Versions** section displays the currently running loaded application version number, the factory loaded application version number, and the Host Boot version numbers. In the **Select APP Version** drop-down, you can choose a different application version number to load. Click **Select & Reboot** to load the selected application and reboot the receiver. Click **Erase** to remove the selected application version. You will be prompted to continue or not. Click **OK** to continue the deletion.

The **Firmware Versions** section displays the current and safe limits for the Field Programmable Gate Array (FPGA) version number, and the Complex Programmable Logic Device (CPLD) version number. In the **Select FPGA Version** drop-down, you can choose a different FPGA application version number to load. Click **Select & Reboot** to load the selected application and reboot the receiver. Click **Erase** to remove the selected application version. You will be prompted to continue or not. Click **OK** to continue the deletion.

In the **Download APP** section, click **Browse** to select the new version of FPGA or the D9854 Advanced Program Receiver's software application. The Choose File dialog opens. Select the upgrade file and click **Open**. Click **Download** to download the selected upgrade file. File formats that can downloaded include cdt, FPGA, app, etc.

Note: For application downloads, once the download is complete, the D9854 receiver will reboot automatically. For FPGA downloads, you must click **Reboot Receiver** in the Service Actions page (**Support > Service Actions**) to manually reboot the D9854 receiver and complete the download. This is to facilitate the typical case in which the user intends to flash the FPGA file (no auto reboot) followed by an APP download (auto reboot).

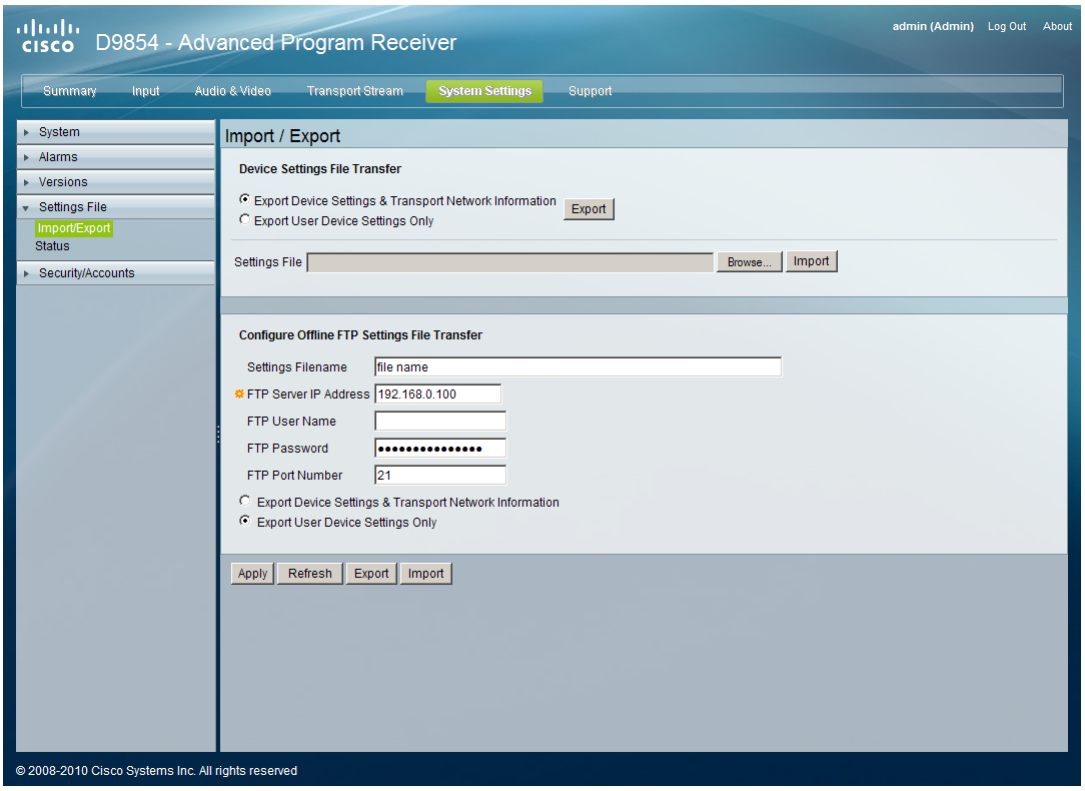
The **Download Status** section displays the current status of the downloads. Click **History** and the Download History window is displayed.



You can sort the columns by clicking on the column headings. Click **Export** to save the history information to a file.

Setting up Import/Export Information

1 From the user interface of the D9854, click **System Settings > Settings File > Import/Export**. The Import/Export page is displayed.



In the **Device Settings File Transfer** section, you can export and/or import device settings and transport network information.

2 Select **Export Device Settings & Transport Network Information** and click **Export** to download device settings and transport network information as a file to the designated file folder.

3 Select **Export User Device Settings only** and click **Export** to download user settings as a file to the designated file folder.

4 In the **Settings File**, click **Browse**. The Choose File dialog opens.

Navigate to the appropriate folder and select the file with a *.bkp* file extension and click **Open**. Click **Import**.

5 The **Configure Offline FTP Settings File Transfer** section has backup and restore controls.

Note: You must have access to an FTP Server (e.g. WinFTP) on a network or a local PC before you can setup backup/restore controls.

6 Type the **Settings Filename** of the backup/restore file. You can enter up to 119 characters.

7 Set the **FTP Server IP Address** of the FTP server used to restore the backup/restore file. The address is up to 12 characters in length (e.g. 171.300.100.200 and in the range from 0 to 255.

8 Set the **FTP User Name** and **FTP Password** to access the FTP server.

Note: The FTP Password is not retained in the receiver. You must re-enter the password before initiating the backup or restore operation.

9 Set the **FTP Port Number** of the FTP server used to store the backup/restore file. You can enter a port number in the range from 1 to 65535.

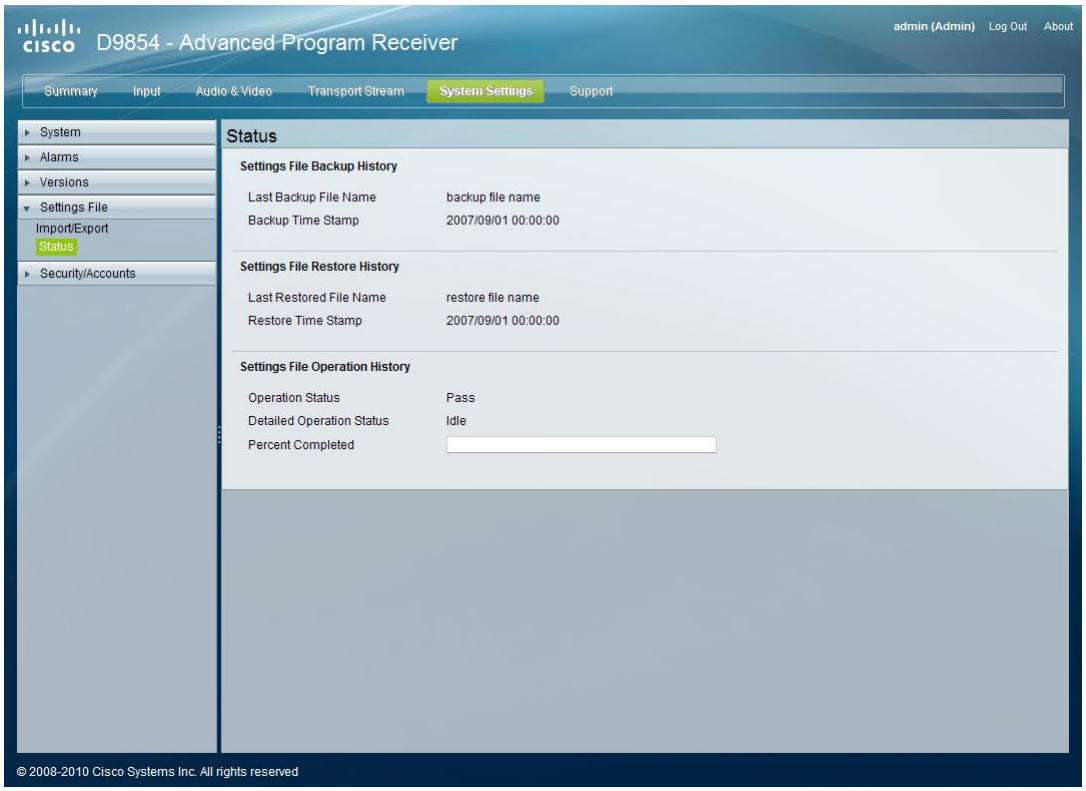
10 Select **Export Device Settings & Transport Network Information** to save user settings and tuning information to the backup file. Select **Export User Device Settings Only** to save user settings to the backup file.

11 Click **Export** to save the settings to a backup file. Click **Import** to retrieve the last backed up file.

While backup or restore is in progress, the operation status, file transfer percentage, and detailed status windows appear.

Viewing the Backup/Restore Status

From the user interface of the D9854, click **System Settings > Settings File > Status**. The Status page is displayed.



The following table displays the Settings File Backup/Restore/Operation History information:

Status	Description
Last Backup File Name	Name of the file to use.
Backup Time Stamp	Date and time of the last successful backup file saved.
Last Restored File Name	Name of the last file that was restored.
Restore Time Stamp	Date and time of the last successful restore.
Operation Status	Status of the current backup operation (Inprogress, Pass, or Fail).
Detailed Operation Status	Detailed processing step for tracking backup progress.
Percentage Complete	Percentage of backup function completed.

Managing D9854 Web GUI Accounts

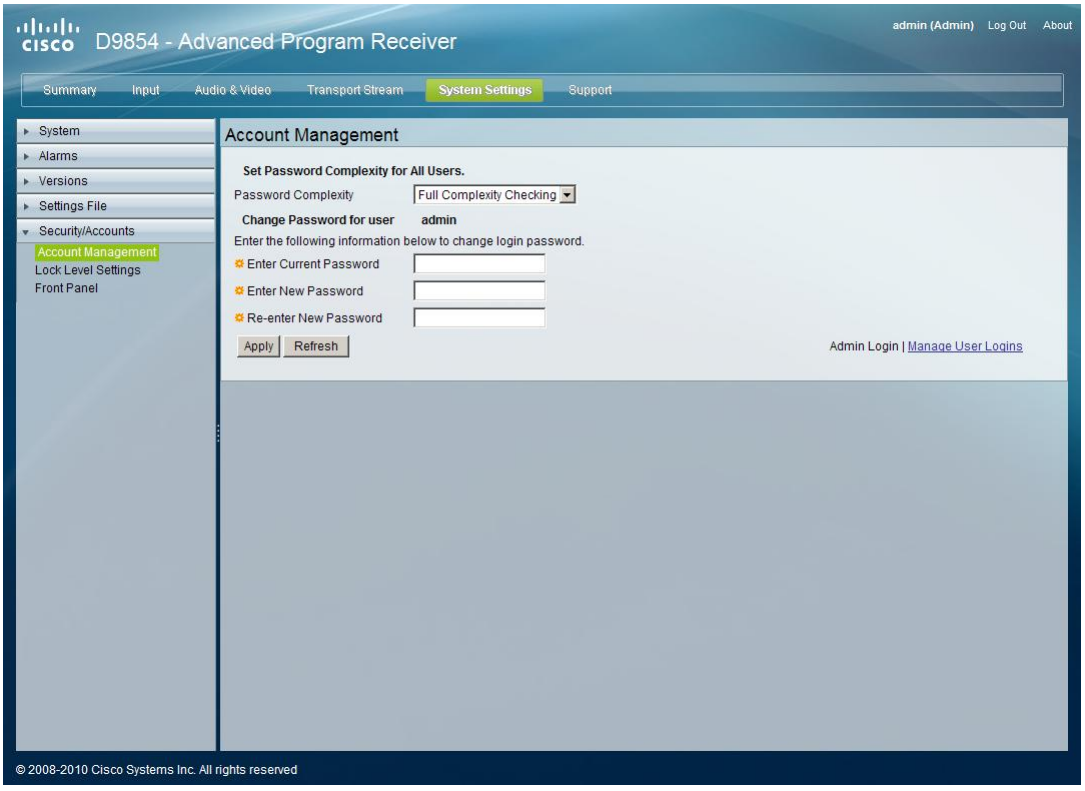
You can define up to 10 usernames/passwords for login use via web GUI session on the D9854 receiver.

When a user tries to login, the user is required to provide a username and a password. The user is granted access only if this username/password pair exists in the authentication table.

The factory preset "Admin" account has Admin privileges and is allowed to add new users, delete users, change usernames, and modify its own passwords. Users with non-Admin privileges (for example, User and Guest) are only allowed to modify their own passwords

To Change the User Login Passwords

1 From the user interface of the D9854, click **System Settings > Security/Accounts > Account Management**. The Account Management page is displayed.



To configure the password complexity for all users:

Note: This feature is only available to a user with Admin privileges only.

2 Set the **Password Complexity** (No Checking, Minimal Checking, Full Complexity Checking). Any changes take effect immediately, and do not require the use of the **Apply** button.

The following describes the rules for each level:

Password Complexity	Description
No Checking	There are no restrictions on passwords. **Note:** A minimum of one character is required.
Minimal Checking	A password must comply with the following requirements: ■ It cannot contain username or reversed username. ■ It cannot contain any of the following strings: cisco, sciatl, ocsic, Itaics, atlsci, icslta, or any string achieved by full or partial capitalization of letters. ■ No letter is repeated more than three times in a row. ■ Must contain a minimum of four characters.
Full Complexity Checking	A password must comply with the following requirements: ■ It cannot contain username or reversed username. ■ It cannot contain any of the following strings: cisco, sciatl, ocsic, Itaics, atlsci, icslta,or any string achieved by full or partial capitalization of letters. ■ No letter is repeated more than three times in a row. ■ Must contain a minimum of eight characters. ■ Must contain a minimum of three of the following types of characters: capital letters, small letters, digits, and special characters.

Note: The complexity level changes will only affect the new user accounts and password changes. It will not affect existing passwords. Any changes take effect immediately, and do not require the use of the **Apply** button.

To change your login password:

Note: You are allowed to only modify your own password.

3 The **Change Password for User** displays the password for the current login.

4 In the **Enter Current Password**, type the current login password.

5 In the **Enter New Password**, type the new login password.

6 In the **Re-enter New Password**, type the new login password again to confirm. Once the password change is successful, the user will be directed to the login screen to re-enter their username and password.

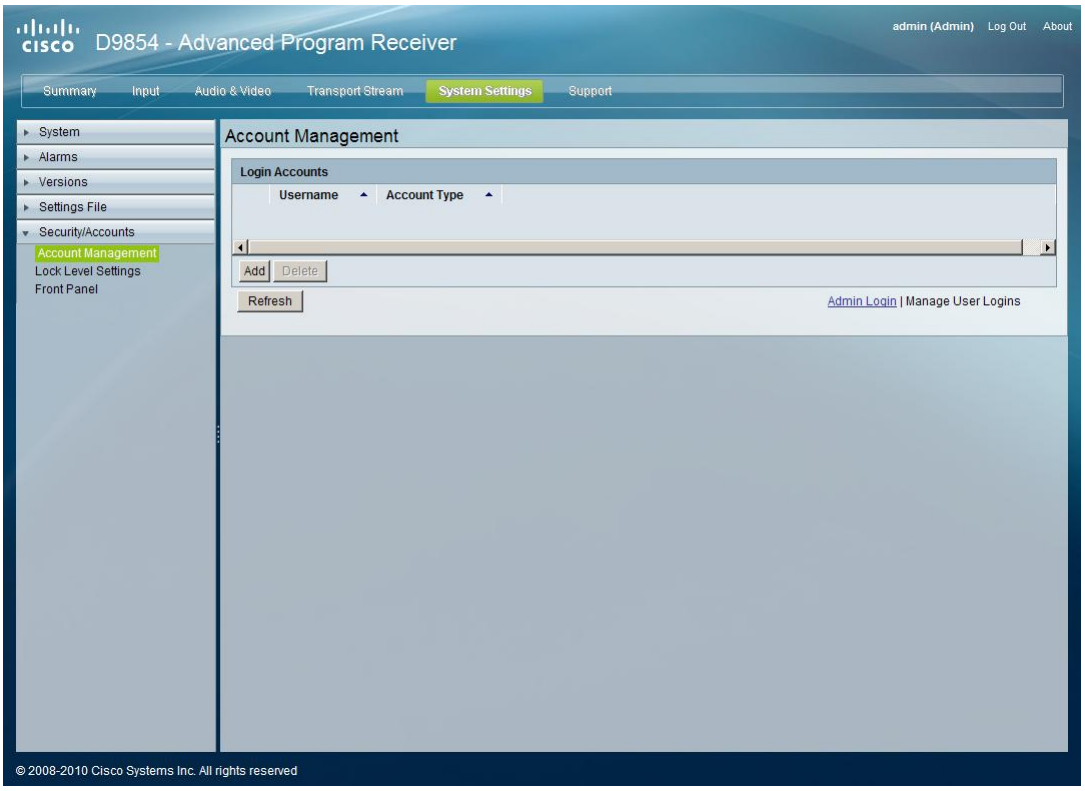
Note: The Enter New Password and Re-enter New Password should be identical. Each user, including the admin user, can only modify their own password.

7 Click **Apply**.

To Add a User Account

Note: This feature is available to a user with Admin privileges only.

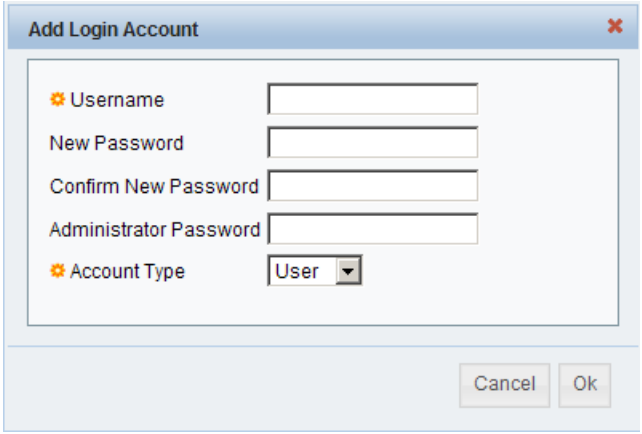
1 From the Account Management page, click on the **Manage User Logins** link. The Login Accounts page is displayed.



2 Click **Add** to create a new login account.

Note: You can create a maximum of 10 user accounts.

The Add Login Account window is displayed.



3 In the **Username** field, enter a user ID. The new username should not match any of the usernames already defined in the Logins Accounts table.

4 In the **New Password** field, enter a password to assign the user ID. The password must follow the rules configured in the **Set Password Complexity for All Users** parameter. For more information, see ***To Configure the User Login Passwords*** (see "***To Change the User Login Passwords***" on page 209).

5 Enter the new password again to confirm in the **Confirm New Password** field.

Note: The New Password and Confirm New Password should be identical.

6 In the **Administrator Password** field, enter your Administrator password used to log on to the D9854 web GUI.

7 In the **Account Type** drop-down list, select User, Admin, or Guest. The following table illustrates the different login types:

Account Type	Access
Guest	View settings only.
User	View and edit settings.
Admin	View, edit settings, and add/delete user accounts.

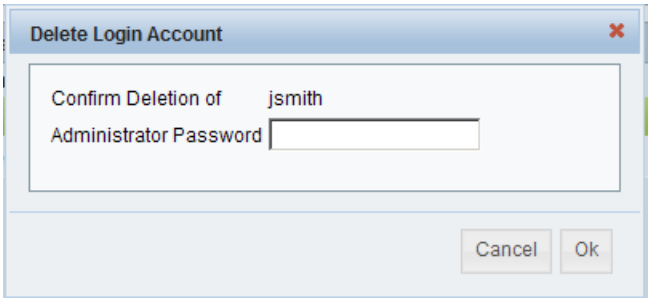
8 Click **OK**.

To Delete a User Account

Note: This feature is available to a user with Admin privileges only.

1 In the Account Management table, select the user you want to remove.

2 Click **Delete**. The Delete Login Account window is displayed.

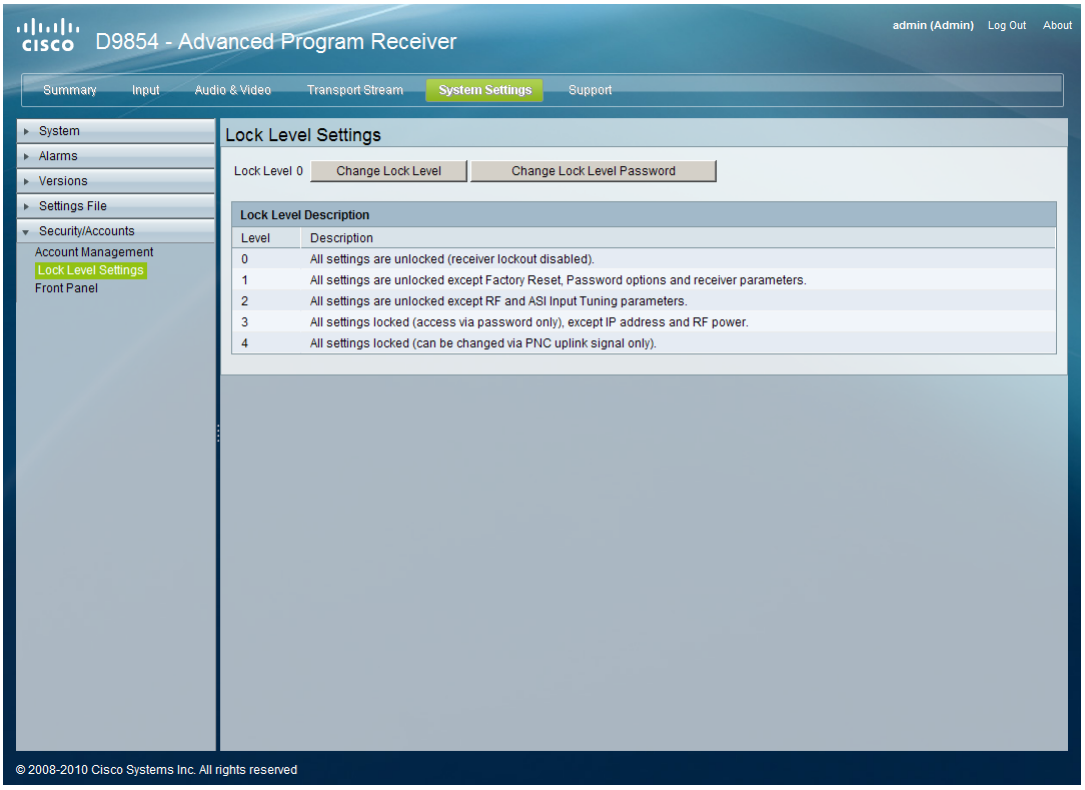


3 Enter your **Administrator Password** to confirm the deletion.

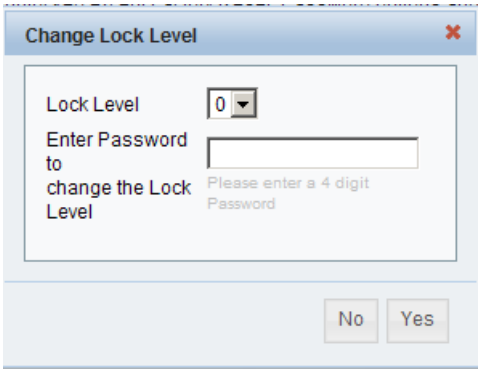
4 Click **OK**. The selected user account is deleted.

Configuring Lock Level Settings

1 From the user interface of the D9854, click **System Settings > Security/Accounts > Lock Level Settings**. The Lock Level Settings page is displayed.



2 Click **Change Lock Level** and the Change Lock Level window is displayed.



3 Select the **Lock Level** which restricts access and prevents unauthorized changes to the receiver settings (0, 1, 2, or 3). The default setting is 0.

Note: For details on the four lock levels, see ***D9854 Receiver Lock Levels*** (on page 302).

4 Enter the Password to change the lock level. The default password is 1234.

5 Click **Yes**.

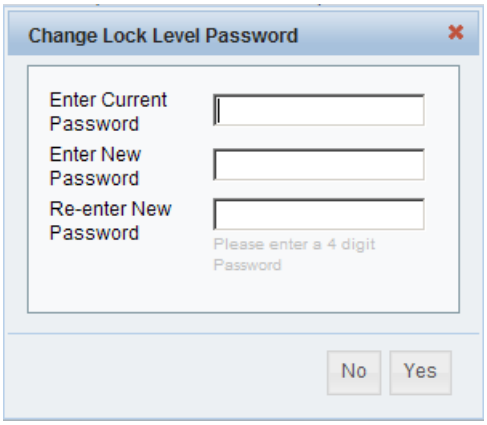
If the incorrect lock level or password is entered, an error message appears at the top of the page.

Changing the Lock Level Password

A unique lock level password (4-digit password) protects the current receiver settings against unauthorized changes. When changing the password, record and keep this number in a secure location. The default password is 1234.

Important: Proceed with caution when changing the password as this operation cannot be undone. If the password is lost or is unavailable, contact Cisco customer support.

1 In the Lock Level Settings page, click **Change Lock Level Password**. The Change Lock Level Password window is displayed.



2 **Enter** the **Current lock level Password**.

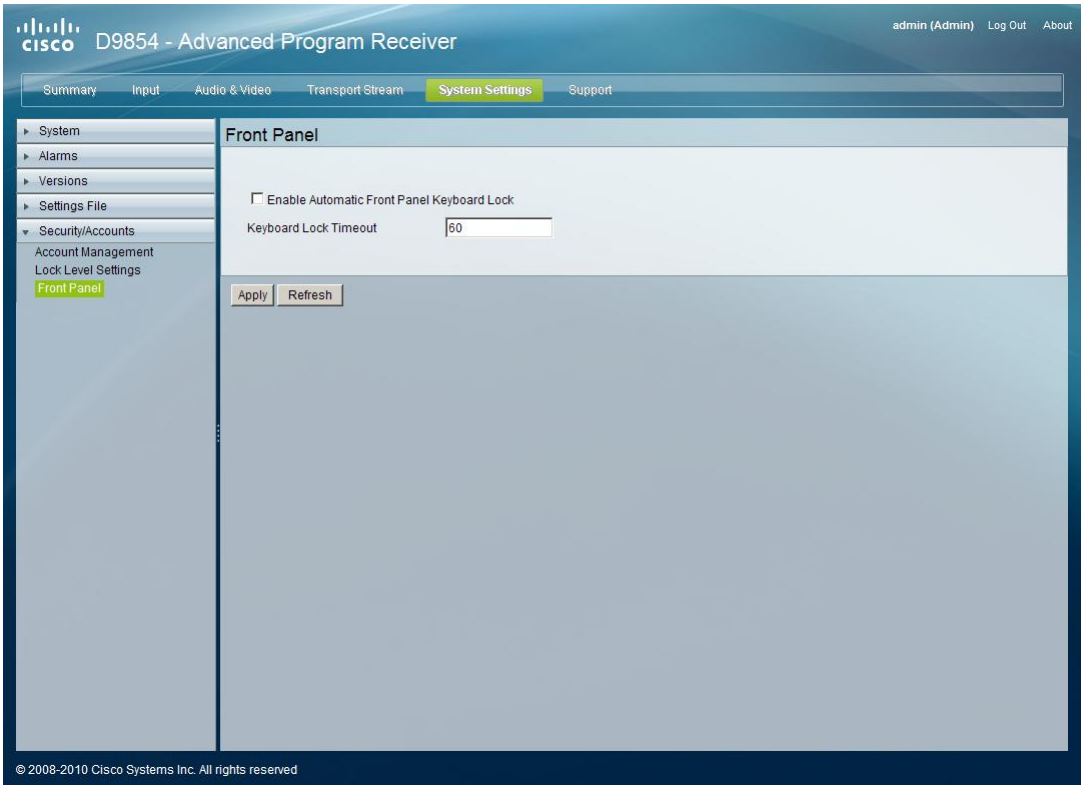
3 In the **Enter New Password** field, enter the new password, any number from 0 to 9.

4 Re-enter the **New Password** and click **Yes**. A message appears informing you that the password was changed successfully.

Note: If the password is lost or is unavailable, contact Cisco customer support.

Configuring Front Panel Settings

1 From the user interface of the D9854, click **System Settings > Security/Accounts > Front Panel**. The Front Panel page is displayed.



2 Select the **Enable Automatic Front Panel Keyboard Lock** to enable the front panel keypad lock state.

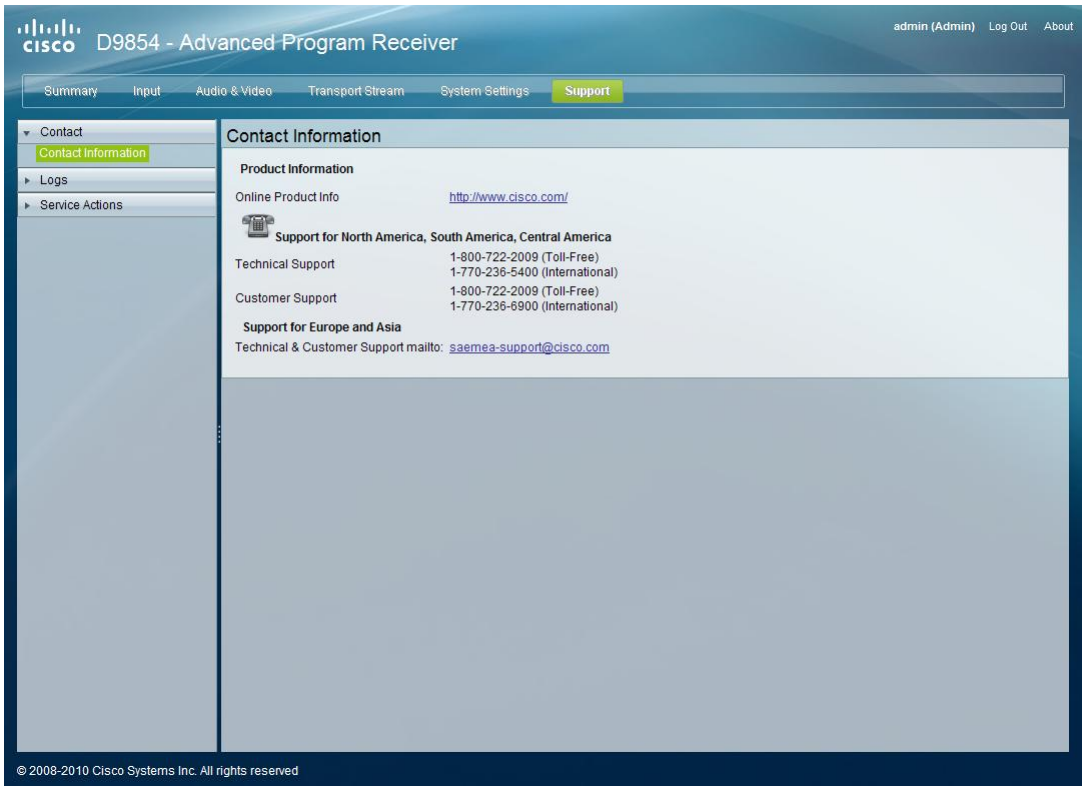
3 The **Keyboard Lock Timeout** sets the keypad lock timeout period. The lock timeout period takes effect when the keypad has not been touched (i.e., a key has not been pressed) when on the Main Menu for the set period. Avoid setting the period to a short duration when the keypad is used often. Enter a value in the range from 5 to 1800 seconds. The default is 60 seconds.

4 Click **Apply**.

Viewing Support Information

Viewing Contact Information

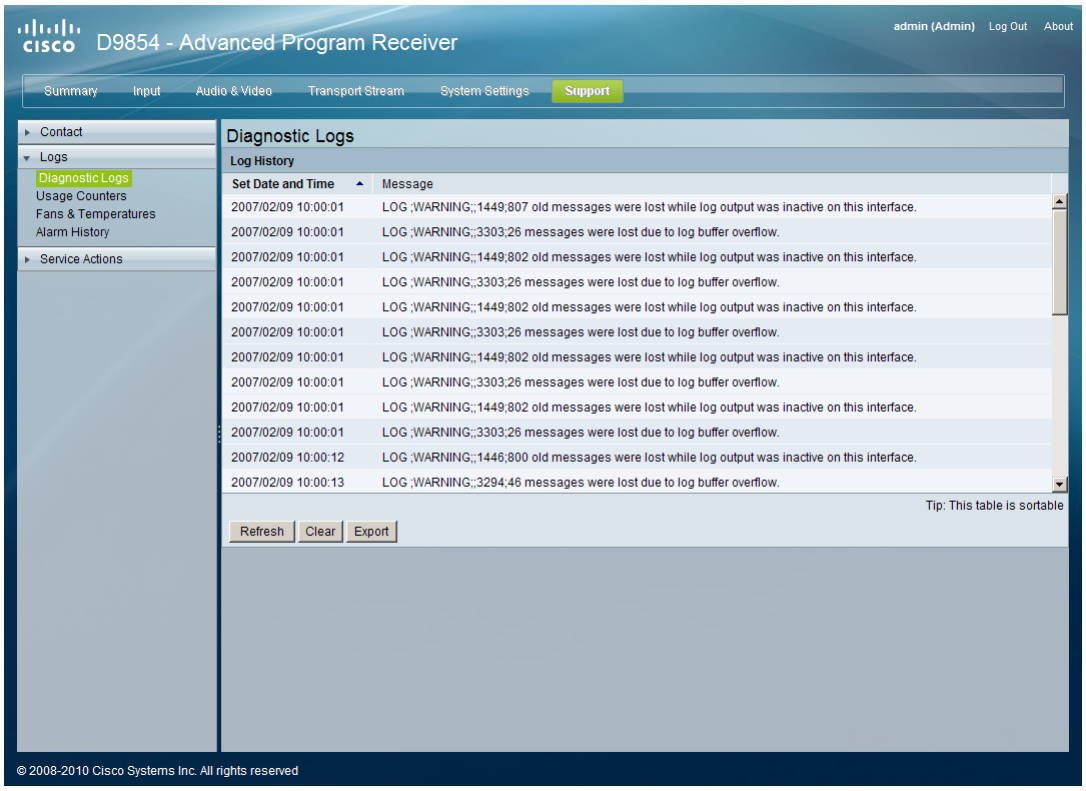
From the user interface of the D9854, click **Support > Contact > Contact Information**. The Contact Information page is displayed.



The Contact Information page displays all the Cisco customer support information.

Viewing Diagnostic Logs

From the user interface of the D9854, click **Support > Logs > Diagnostic Logs**. The Diagnostic Logs page is displayed.



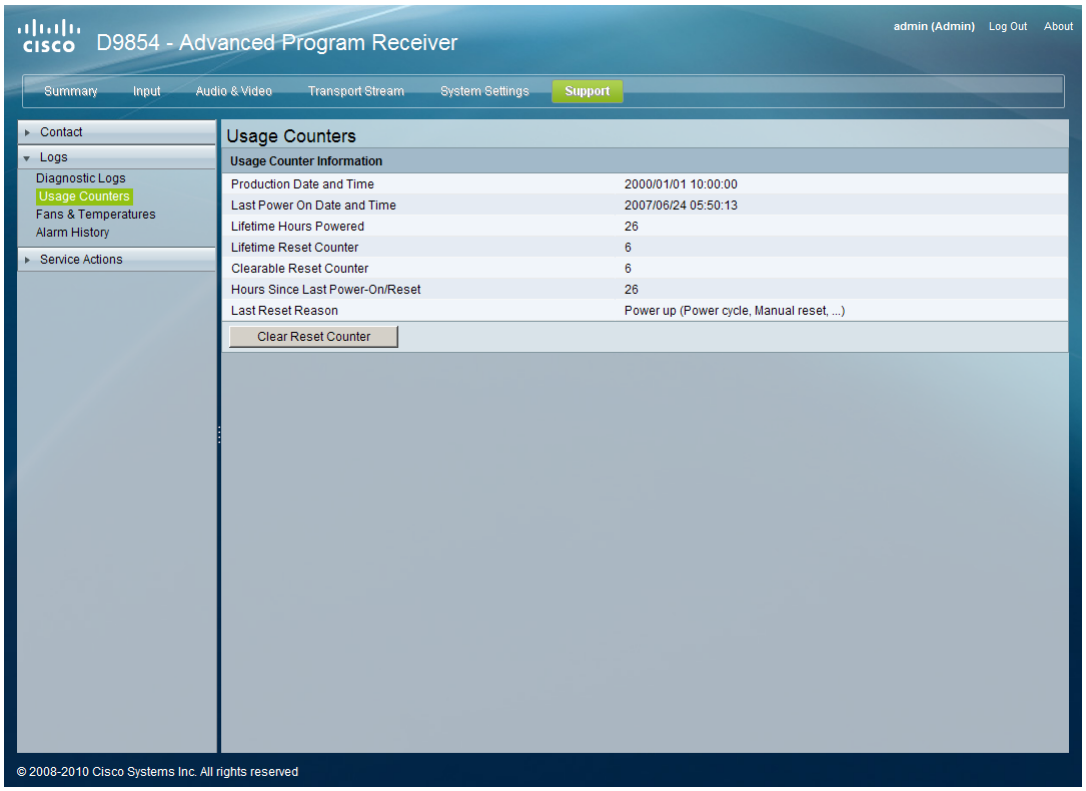
The Diagnostic Logs page displays all the system log messages with their dates and times.

Click on the arrow next to **Set Date and Time** column to sort by date and time.

Click **Export** to export the log history to a .csv file. The File Download dialog is displayed. Click **Save** to save the file to your local drive.

Viewing the Usage Counters

From the user interface of the D9854, click **Support > Logs > Usage Counters**. The Usage Counters page is displayed.



The following table describes the Usage Counter Information:

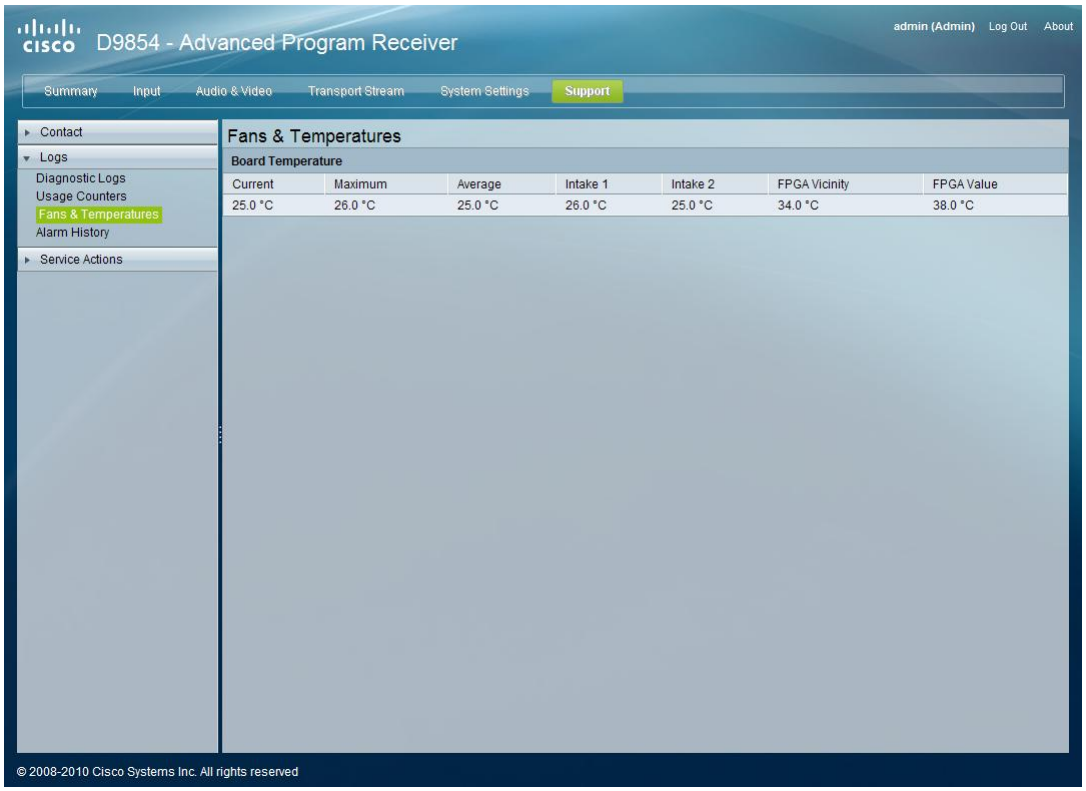
Device Status Information	Description
Production Date & Time	Displays the date and time when the receiver was manufactured.
Last Power On Date and Time	Displays the date and time when the receiver was powered up.
Lifetime Hours Powered	Displays the number of hours since the last power-on.
Lifetime Reset Counter	Displays the total number of times the receiver has been restarted.
Clearable Reset Counter	Displays the number of restarts since the last time the restart counter was cleared. To clear or reset the Clearable Reset Count, click **Clear Reset Counter**.
Hours Since Last Powered-On/Reset	Displays the total number of hours that the receiver has been operating since the last power-on or restart.

Device Status Information	Description
Last Reset Reason	Displays the reason for the last restart, i.e., power cycle or manual reset.

Click **Clear Reset Counter** to clear the **Clearable Reset Counter** field and it resets the counter back to 0.

Viewing Operating Board Temperatures

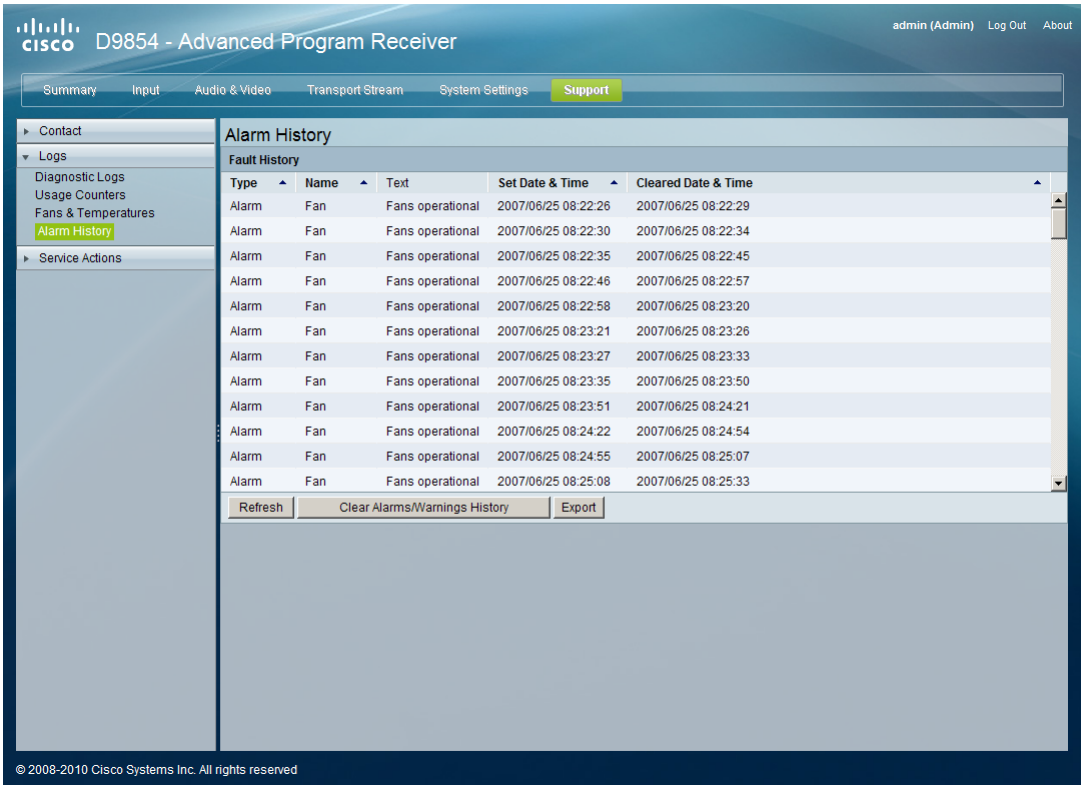
From the user interface of the D9854, click **Support > Logs > Fans & Temperatures**.The Fans & Temperatures page is displayed.



The Board Temperature section displays the current operating temperature (**Current**), the maximum operating temperature (**Maximum**) that has been reached, and the average operating temperature (**Average**). The values are displayed in Degrees Celsius.

Viewing Alarm/Warning History

From the user interface of the D9854, click **Support > Logs > Alarm History**. The Alarm History page is displayed.

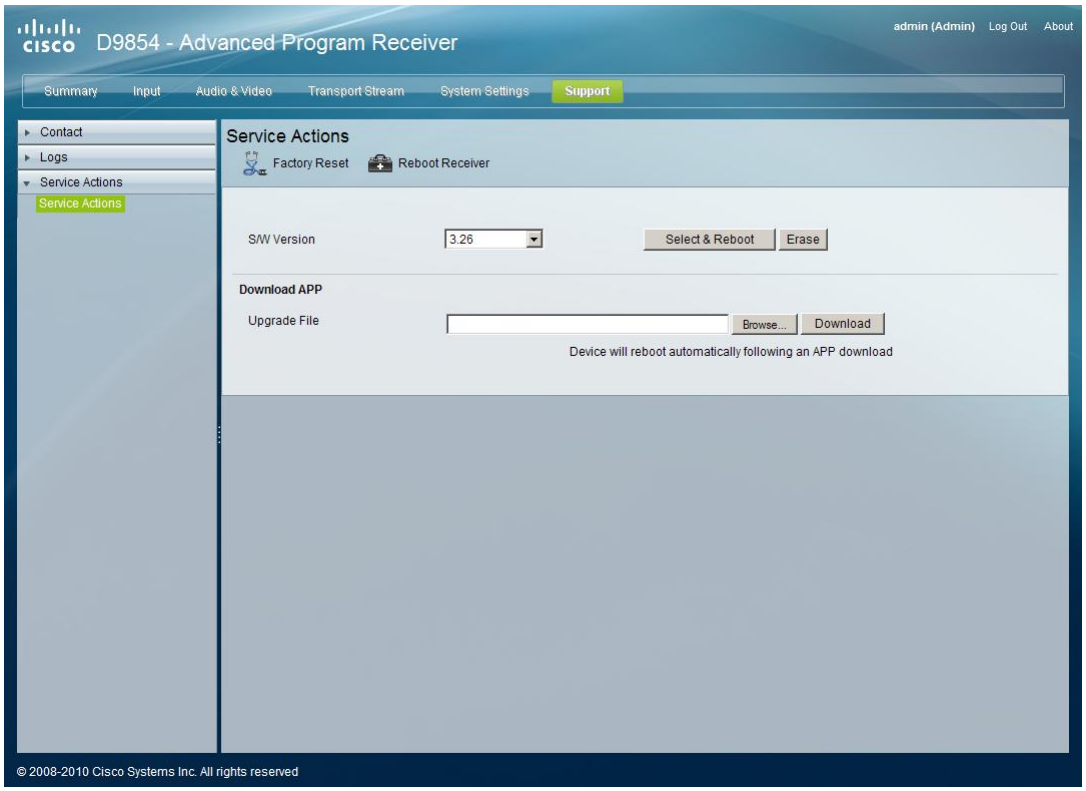


The Alarm and Warning History page displays all the past system event messages and their set and cleared dates and times. For more information on the alarm messages, refer to ***Messages*** (see "***D9854 Receiver Alarm Messages***" on page 227).

Click **Clear Alarms/Warnings History** to clear all the messages in the Fault History table. Click **Export** to export the alarm history to a .csv file. The File Download dialog is displayed. Click **Save** to save the file to your local drive.

Loading a Software Version

From the user interface of the D9854, click **Support > Service Actions > Service Actions**. The Service Actions page is displayed.



The **S/W Version** drop-down list allows you to select/load a different application version to your receiver. Click **Select & Reboot** to load the selected application version and reboot the receiver.

Click **Erase** to remove the selected application version. You will be prompted to continue or not. Press **OK** to continue the deletion.

Click **Factory Reset** to perform a reset of receiver settings back to the factory set (default) values. A warning message prompts you to confirm the operation. Click **OK** to continue or **No** to cancel the operation.

Click **Reboot Receiver** to reboot the receiver. You will be prompted to verify the operation. Click **Yes** to reboot the receiver or **No** to cancel the operation.

To Change the Download Application

In the **Download APP** section, click **Browse** to select the new version of FPGA or the D9854 Advanced Program Receiver's software application. The Choose File dialog opens. Select the upgrade file and click Open. Click Download to download the selected upgrade file.

Note: For application downloads, once the download is complete, the D9854 receiver will reboot automatically. For FPGA downloads, you must click **Reboot Receiver** to manually reboot the D9854 receiver and complete the download. This is to facilitate the typical case in which the user intends to flash the FPGA file (no auto reboot) followed by an APP download (auto reboot).

6

Service and Maintenance

Overview

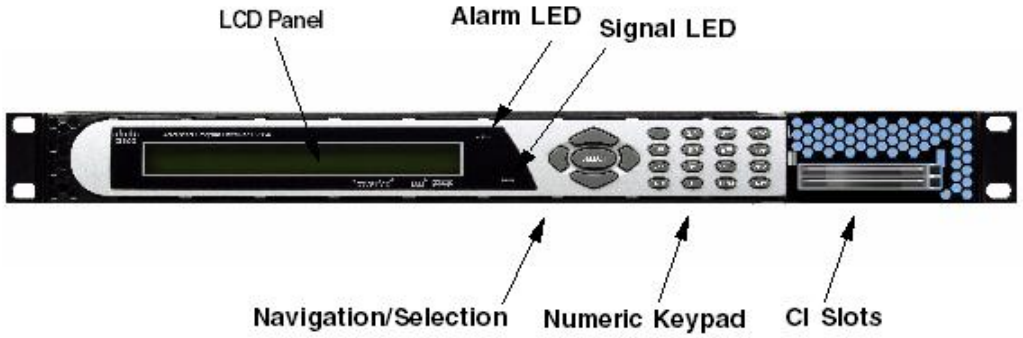
This chapter gives information to assist you in upgrading firmware to the D9854 Advanced Program Receiver. It also describes how the status of the D9854 receiver is communicated via front panel LEDs.

In This Chapter

- Front Panel LEDs 226
- D9854 Receiver Alarm Messages 227

Front Panel LEDs

To help signal the status of operation or the presence of an alarm, the D9854 receiver makes use of front panel LEDs. The photograph below shows the location of the LEDs on the front panel of the D9854 receiver.



The functions of the LEDs are described in the table below.

LED	Signal State/Color	Explanation
ALARM	Red	Solid for five seconds indicates a Warning.
	Red	Flashing indicates an Alarm.
SIGNAL	Green	Solid indicates all of the following conditions: ■ all RF inputs are enabled, all inputs are locked to a signal, and are not muted. ■ all routed ASI outputs are operating without an error.
	Green	Flashing indicates one of the following conditions: ■ difficulty with an input, route or output. ■ one or more RF inputs, or the ASI input are not synchronized. ■ one or more ASI outputs are routed, but muted by a fault condition. ■ no RF signal is present or detected, or it is muted. ■ receiver is not authorized to receive the program.
	Off	Off indicates all of the following conditions: ■ no RF input signal is available, enabled or detected, or the input is muted. ■ no ASI input is present. ■ no valid inputs are available.

D9854 Receiver Alarm Messages

The status of the D9854 receiver and its immediate surroundings is reported to the front panel in the form of messages and alarms. You can enable or disable messages in the Alarm/Warning settings.

The following table shows an alphabetical list of the available messages and their default alarm status. The Set Messages and Clear Messages are displayed in the Warning History when the messages are set or cleared respectively.

Only alarm conditions can be used to trigger rear panel relays to control external alarm equipment. Warnings are not associated with relay operation.

Alarms

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
PSB non-compliant	Set	PROD incomplete or PSB non-compliant	Cause: Production command exit_weak_state was not issued after production programming was completed. Remedy: The Exit_weak_state command should be issued by the user with PROD credentials if the device has not yet been shipped to the customer. Otherwise, the customer must reset credentials using the Front Panel.	Device is in the WEAK state after production programming is complete.	Major
PSB non-compliant	Clear	PSB compliant			

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Signal Status	Set	ASI Signal - No Content	Cause: Loss of ASI/RF lock. Loss of Transport data. Invalid frequency parameters. External to IRD. Remedy: Check tuning parameters and ASI/RF cables.	ASI Link Locked, but no TS content.	Minor
Signal Status	Set	RF Signal - No Content	Cause: Loss of ASI/RF lock. Loss of Transport data. Invalid frequency parameters. External to IRD. Remedy: Check tuning parameters and ASI/RF cables.	RF Tuner locked, but no TS content.	Minor
Signal Status	Set	Signal is lost	Cause: Loss of ASI/RF lock. Loss of Transport data. Invalid frequency parameters. External to IRD. Remedy: Check tuning parameters and ASI/RF cables.	Loss of signal	Minor
Signal Status	Set	Tuning Parameters Invalid	Cause: Loss of ASI/RF lock. Loss of Transport data. Invalid frequency parameters. External to IRD. Remedy: Check tuning parameters and ASI/RF cables.	One of the tuning parameters is invalid	Minor
Signal Status	Clear	Signal is locked		Signal OK	Minor

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Signal Status	Clear	Tuning Parameters Valid		Tuning parameters are valid	Minor
PE n: ISE Not Auth	Set	Channel is not authorized	Cause: The channel is unauthorized for the current program. Remedy: Contact your (uplink) service provider to determine whether you are authorized to receive the current program.	Program unauthorized because the tier bits do not match.	Minor
PE n: ISE Not Auth	Set	Channel requires an authorization key	Cause: The channel is unauthorized for the current program. Remedy: Contact your (uplink) service provider to determine whether you are authorized to receive the current program.	Program is unauthorized because the unit does not have an authorization key.	Minor
PE n: ISE Not Auth	Set	Channel is blacked out	Cause: The channel is unauthorized for the current program. Remedy: Contact your (uplink) service provider to determine whether you are authorized to receive the current program.	Program is unauthorized because at a minimum, it needs to match one blackout code.	Minor

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
PE n: ISE Not Auth	Set	Channel uses an unknown CA system	Cause: Conditional access not supported. Remedy: Contact your (uplink) service provider to determine whether you are authorized to receive the current program at this time.	Non-SA conditional access system.	Minor
PE n: ISE Not Auth	Set	Channel authorization refused	Cause: Conditional access not supported. Remedy: Contact your (uplink) service provider to determine whether you are authorized to receive the current program at this time.	There is mismatch in the Conditional access.	Minor
PE n: ISE Not Auth	Set	Channel requires an IRD with CA support	Cause: Conditional access not supported. Remedy: Contact your (uplink) service provider to determine whether you are authorized to receive the current program at this time.	Conditional access is not supported.	Minor
PE n: ISE Not Auth	Set	Channel requires the PE to have an ISE	Cause: Hardware issue. Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	Hardware issue.	Minor

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
PE n: ISE Not Auth	Set	Channel Unavailable - LEC timeout	Cause: Uplink configuration issue. Remedy: Contact your (uplink) service provider to determine whether the LEC GDS data is being provided in the stream.	Uplink configuration issue.	Minor
PE n: ISE Not Auth	Clear	Fault Reset			Minor
PE n: ISE Not Auth	Clear	Channel is authorized			Minor
CI Top Slot Status	Set	Initialization Fail	Cause: CAM is damaged or not fully inserted, hardware issue, CAM software crash or you don't have subscription rights for the card. Remedy: Re-insert the CAM.	Initialization of CAM in top slot failed.	Major
CI Top Slot Status	Set	No Descrambling	Cause: CAM is damaged or not fully inserted, hardware issue, CAM software crash or you don't have subscription rights for the card. Remedy: Re-insert the CAM.	All elementary streams of all selected programs are not descrambled.	Major
CI Top Slot Status	Clear	CAM Operation OK			Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
CI Bottom Slot Status	Set	Initialization Fail	Cause: CAM is damaged or not fully inserted, hardware issue, CAM software crash or you don't have subscription rights for the smart card. Remedy: Re-insert the CAM, and/or check your rights for the smart card.	Initialization of CAM in bottom slot failed.	Major
CI Bottom Slot Status	Set	No Descrambling	Cause: CAM is damaged or not fully inserted, hardware issue, CAM software crash or you don't have subscription rights for the smart card. Remedy: Re-insert the CAM, and/or check your rights for the smart card.	All elementary streams of all selected programs are not descrambled.	Major
CI Bottom Slot Status	Clear	CAM Operation OK			Major
PE n CI Status	Set	Program Not Descrambled	Cause: Hardware issue, CAM software crash or you don't have subscription rights for the smart card. Remedy: Reinsert the CAM and/or check your rights for the smart card.	All elementary streams for this service selected for descrambling were not descrambled by the CAM.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
PE n CI Status	Set	1 or more ES Not Descrambled	Cause: Hardware issue, CAM software crash or you don't have subscription rights for the smart card. Remedy: Reinsert the CAM and/or check your rights for the smart card.	At least 1 elementary stream is not descrambled, but the CAM is still descrambling other elementary streams for this service.	Major
PE n CI Status	Clear	Descrambling OK			Major
PE n: Loss of Input	Set	Loss of input detected	Cause: Loss of input. Remedy: Ensure input has a valid stream.	Loss of input.	Minor
PE n: Loss of Input	Clear	Fault reset			Minor
Digital Program Mapping	Set	PID Collision	Cause: Uplink settings may have changed since setting up the unit. Please check your DPM settings. Remedy: Correct the DPM settings. Check the uplink to find the appropriate system settings.	Two source service PIDs are being mapped to the same output PID. This will cause data corruption in the stream.	Minor
Digital Program Mapping	Set	Program Collision	Cause: Uplink settings may have changed since setting up the unit. Please check your DPM settings. Remedy: Correct the DPM settings. Check the uplink to find the appropriate system settings.	Two source channel numbers are being mapped/ passed to the same channel number in the output.	Minor

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Digital Program Mapping	Set	Mode-i PMT out of range	Cause: Uplink settings may have changed since setting up the unit. Please check your DPM settings. Remedy: Correct the DPM settings. Check the uplink to find the appropriate system settings.	PMT PID to be used for Mode-i is outside of valid MPEG PID range.	Major
Digital Program Mapping	Clear	Digital Program Mapping - OK			Major
Shutdown Event	Set	DL APP REBOOT	Cause: User request requires reboot or internal system error. Remedy: If it is an internal system error fault, clear alarms, reset the unit, notify customer service if the problem persists.	New application downloaded, system requires reboot.	Major
Shutdown Event	Set	User requested FPGA change	Cause: User request requires reboot or internal system error. Remedy: If it is an internal system error fault, clear alarms, reset the unit, notify customer service if the problem persists.	Runnable FPGA change requires reboot.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Shutdown Event	Set	User requested APP change	Cause: User request requires reboot or internal system error. Remedy: If it is an internal system error fault, clear alarms, reset the unit, notify customer service if the problem persists.	Runnable application change requires reboot.	Major
Shutdown Event	Set	User requested factory reset	Cause: User request requires reboot or internal system error. Remedy: If it is an internal system error fault, clear alarms, reset the unit, notify customer service if the problem persists.	Factory reset requires reboot.	Major
Shutdown Event	Set	User requested reboot	Cause: User request requires reboot or internal system error. Remedy: If it is an internal system error fault, clear alarms, reset the unit, notify customer service if the problem persists.	User reboot request.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Shutdown Event	Set	User requested service restore	Cause: User request requires reboot or internal system error. Remedy: If it is an internal system error fault, clear alarms, reset the unit, notify customer service if the problem persists.	Restore operation required restart	Major
Shutdown Event	Set	PRODUCTION - Protect Flash	Cause: User request requires reboot or internal system error. Remedy: If it is an internal system error fault, clear alarms, reset the unit, notify customer service if the problem persists.	Reboot after production tables removed.	Major
Shutdown Event	Set	I2C Failure	Cause: Possible software/hardware issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Internal system error.	Major
Shutdown Event	Set	WDOG: FPGA not loaded	Cause: Possible software/hardware issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	FPGA has not been loaded.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Shutdown Event	Set	osal_SetDataForAllTasks	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	aw_LoadFaultList	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	osal_Init	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	NVS FLASH mounted	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	DB_Table_Cl::populateNvsRecords	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	STAPI_Init	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Shutdown Event	Set	dprm startup	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	dprm clear startup	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	DB_Array32_Cl init failed	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	DB_FlagArray32_Cl init failed	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	Wrong DB Item detected: item = AAA, table = BBB	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	DB_Item_Cl::addItem() failed	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Shutdown Event	Set	Memory allocation error on DB table construction	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	DB_Table_Cl::add Table() failed	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	DB_Table_Cl::addI tem() failed: too many DB Items	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	DBT Init Failed: AAA	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	Framework Registration Error	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	7109 exception! Code = X, Address = Y, Task = Z	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Shutdown Event	Set	Memory Error: AAA, Phase X	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	Time Control object creation failed	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	Wrong UIC Item detected: item = AAA, table BBB	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	Memory allocation error on UIC table construction	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	Error adding UIC table(AAA)	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	HTTP - http_init4() FAILED to create partition	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Shutdown Event	Set	http_init4: FAILED to allocate scratch buffer	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	HTTP - http_init4() FAILED to allocate memory from AVMEM Partition	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	UD - ud_init_phase_4() FAILED to allocate memory from System Partition	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	UD - ud_init_phase_4() FAILED to create partition	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	'--- COMPONENT 'AAA' FAILED TO INIT IN PHASE X, rc=NNN	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	VBI DB creation failed	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Shutdown Event	Set	VBI DB allocation failed	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	VBI Status DB creation failed	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	VBI Status DB allocation failed	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	UIC_ENUM_CL given invalid ENUM_ST: item = AAA, table = BBB, problem with primary: X	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Application initialization error.	Major
Shutdown Event	Set	FW: Memory or List Full	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Internal system error.	Major
Shutdown Event	Set	Framework Registration Error	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Internal system error.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Shutdown Event	Set	Watchdog 'AAA' has expired	Cause: Possible software issue. Remedy: Clear alarms, reset unit, notify customer service if problem persists.	Software detected an error in operation.	Major
System Startup	Set	System Startup	Cause: The unit has started up and it indicates an expected or unexpected reset. Remedy: If a startup was unexpected, check for last reset cause. Notify customer service if problem persists.	Indicates that the decoder has started up. This alarm will clear itself after one second.	Major
SMI Setup	Set	Phase lock error on SMI SDRAM	Cause: Hardware Issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	SDRAM on SMI bus not working.	Major
SMI Setup	Set	SMI SDRAM exhaust test failed	Cause: Hardware Issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	SDRAM on SMI bus not working.	Major
SMI Setup	Clear	SMI SDRAM setup successful		SDRAM on SMI Bus OK.	Major
SMI Setup	Clear	SMI SDRAM exhaust test passed		SDRAM on SMI Bus OK.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
LMI setup	Set	LMI SDRAM exhaust test failed	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	DDR RAM on LMI bus not working.	Major
LMI setup	Clear	LMI Video SDRAM exhaust test passed		DDR RAM on LMI bus OK.	Major
Param Storage	Set	DB NVS flushing ignored	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Non-volatile storage system failed to update fully.	Major
Param Storage	Set	RAM flush to NVS failed	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Non-volatile storage system failed to update fully.	Major
Param Storage	Set	DB Factory Reset in progress	Cause: Standard operation. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Non-volatile storage system operation in progress.	Major
Param Storage	Set	DB Total Reset in progress	Cause: Standard operation. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Non-volatile storage system operation in progress.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Param Storage	Set	DB NVS flush in progress	Cause: Standard operation. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Non-volatile storage system operation in progress.	Major
Param Storage	Set	DB Populate in progress	Cause: Standard operation. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Non-volatile storage system operation in progress.	Major
Param Storage	Set	DB Factory Reset failed	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Non-volatile storage system failed during operation.	Major
Param Storage	Set	DB Total Reset failed	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Non-volatile storage system failed during operation.	Major
Param Storage	Set	DB Populate failed	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Non-volatile storage system failed during operation.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Param Storage	Set	DB NVS flush failed	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Non-volatile storage system failed during operation.	Major
Param Storage	Clear	DB flushing completed		Successful NVS update.	Major
Param Storage	Clear	DB Factory Reset completed		Non-volatile storage system operation successful	Major
Param Storage	Clear	DB Total Reset completed		Non-volatile storage system operation successful	Major
Param Storage	Clear	DB NVS flush completed		Non-volatile storage system operation successful	Major
Param Storage	Clear	DB Populate completed		Non-volatile storage system operation successful	Major
Flash Storage	Set	RECORD: init failed	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Non-volatile storage system corrupted. Possible loss of configuration.	Major
Flash Storage	Set	RECORD MANAGER: Record contents check error, erasing all	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	NVS Corruption, and loss of configuration data	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Flash Storage	Set	RECORD: sector setup check error, erasing sector	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	NVS Corruption, and loss of sector data	Major
Flash Storage	Clear	RECORD: init done			Major
LNB PS	Set	LNBPS: No Load	Cause: Possible wiring or hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	LNB power overload	Minor
LNB PS	Set	LNBPS: Over Temperature	Cause: Possible wiring or hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	LNB power overload	Minor
LNB PS	Set	LNBPS: Over Loaded	Cause: Possible wiring or hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	LNB power overload	Minor

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
LNB PS	Set	LNBPS: Short Circuit	Cause: Possible wiring or hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	LNB power overload	Minor
LNB PS	Clear	LNBPS: Normal		LNB power OK	Minor
LNB PS	Clear	LNBPS: Disabled			Minor
LNB PS	Clear	LNBPS: Off			Minor
Signal Quality	Set	Audio Muted due to RF noise	Cause: RF Signal quality is poor due to interference or signal level issues. Remedy: Check RF settings, re-aim dish, and add signal amplifier.	Signal is locked but BER is beyond Audio muting threshold.	Minor
Signal Quality	Set	Unstable RF Signal	Cause: RF Signal quality is poor due to interference or signal level issues. Remedy: Check RF settings, re-aim dish, and add signal amplifier.	Signal lock status is toggling frequently.	Minor
Signal Quality	Set	Poor Quality RF Signal	Cause: RF Signal quality is poor due to interference or signal level issues. Remedy: Check RF settings, re-aim dish, and add signal amplifier.	Signal is locked but BER is beyond muting threshold.	Minor
Signal Quality	Clear	Signal Quality Fault Cleared			Minor
Signal Quality	Clear	Audio Unmuted			Minor

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Transport Processing	Set	PTI lockup	Cause: Possible software issue. Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	Programmable transport input module stopped processing any data packet.	Minor
Transport Processing	Clear	PTI running			Minor
Version Mismatch	Set	Version Mismatch between 5514/7109	Cause: App5514 version does not match App7109 version. Remedy: Download code with identical App5514 and App7109 versions.	Version mismatch between code running 5514 and 7109 processors.	Major
DL:NVS Flash Failure	Set	APP5514 Flash Write Failed	Cause: Possible hardware or software issue. Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	Failed to read or write flash memory	Major
DL:NVS Flash Failure	Set	APP/SAT7109/PPC CRC/Write has Failed	Cause: Possible hardware or software issue. Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	Failed to read or write flash memory	Major
DL:NVS Flash Failure	Set	TEB Flash Write Failed	Cause: Possible hardware or software issue. Remedy: Clear alarms, reset unit, and notify customer service if problem persists.	Failed to read or write flash memory	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Temperature Alarm	Set	Temperature over Alarm threshold	Cause: Room temperature too high, or air flow is blocked. Remedy: Check openings on front and rear panels for blockage. Lower room temperature or improve air flow to device.	Temperature is above safe operating range.	Major
Temperature Alarm	Clear	Temperature normal			Major
Fan	Set	Fan RPM Alarm	Cause: Hardware issue. Remedy: Unit should be returned to customer service as soon as possible.	Fan RPM out of normal operating range.	Major
Fan	Clear	Fans Operational			Major
FPGA Temperature Alarm	Set	Temperature over Alarm threshold	Cause: Room temperature too high, or air flow is blocked. Remedy: Check openings on front and rear panels for blockage. Lower room temperature or improve air flow to device.	FPGA temperature is above safe operating range.	Major
FPGA Temperature Alarm	Clear	Temperature normal			

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
ASI Out Status	Set	ASI Overflow. Output Muted. Reduce content.	Cause: Uplink settings may have changed since setup of the unit. Variable Bit Rate/Statmuxed streams may be in use. Remedy: Increase the output rate, drop unreferenced content in DPM Options, and/or drop programs not needed for downstream devices. Contact your (uplink) service provider to verify the expected bit rate settings.	Current transport rate exceeds configured rate for ASI output. Output has been muted to protect downstream devices.	Minor
ASI Out Status	Clear	ASI Output Restored			Minor
MPoIP Status	Set	MPEGoIP Overflow. Output Muted. Reduce content.	Cause: Uplink settings may have changed since setup of the unit. Variable Bit Rate/Statmuxed streams may be in use. Remedy: Increase output rate, drop unreferenced content in DPM Options, drop programs not needed for downstream devices. Contact uplink to verify expected bitrate settings.	Current transport rate exceeds configured rate for MPEG over IP output. Output has been muted to protect downstream devices.	Minor

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
MPoIP Status	Clear	MPEGoIP Output Restored			Minor
Boot Host	Set	KB not accessible	Cause: Hardware issue Remedy: Clear alarms, reset unit, and notify customer service if the problem persists.	KB is not detected by Boot code.	Major
Boot Host	Set	LCD not connected	Cause: Hardware issue Remedy: Clear alarms, reset unit, and notify customer service if the problem persists.	LCD is not detected by Boot code.	Major
Boot Host	Set	FLASH Not Found	Cause: Hardware issue Remedy: Clear alarms, reset unit, and notify customer service if the problem persists.	Flash memory not detected.	Major
Boot Host	Set	EMI SDRAM Test Failed	Cause: Hardware issue Remedy: Clear alarms, reset unit, and notify customer service if the problem persists.	RAM Failure - memory testing failed.	Major
Boot Host	Set	BOOT Invalid	Cause: Hardware issue Remedy: Clear alarms, reset unit, and notify customer service if the problem persists.	Boot SW cannot be read from memory correctly.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Boot Host	Set	FPGA Invalid	Cause: Hardware issue Remedy: Clear alarms, reset unit, and notify customer service if the problem persists.	FPGA Image cannot be read from memory correctly.	Major
Boot Host	Set	APP Invalid	Cause: Hardware issue Remedy: Clear alarms, reset unit, and notify customer service if the problem persists.	Application SW cannot be read from memory correctly.	Major
Boot Host	Clear	BOOT passed			Major
Boot Secondary	Set	FLASH Not Found	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Flash memory not detected.	Major
Boot Secondary	Set	EMI SDRAM Test Failed	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	RAM Failure - memory testing failed.	Major
Boot Secondary	Set	BOOT Invalid	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Boot SW cannot be read from memory correctly.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
Boot Secondary	Set	FPGA Invalid	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	FPGA Image cannot be read from memory correctly.	Major
Boot Secondary	Set	APP Invalid	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Application SW cannot be read from memory correctly.	Major
Boot Secondary	Clear	BOOT passed			Major
Decoder Processor Start	Set	DB Startup failed	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Transfer of operational parameters to secondary processor failed.	Major
Decoder Processor Start	Set	No Response	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Secondary processor not responding.	Major
Decoder Processor Start	Set	Synchronization Failure	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, and notify customer service if the problem persists.	Communicatio n with secondary processor failing.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
LEC Timeout	Set	LEC Table Missing/timeout:channels currently unavailable	Cause: Possible LEC Server or Uplink issue. Remedy: If using RF input, contact the content provider. If using ASI output, ensure the source has not been changed for the content provider. Clear alarm and notify customer service if the problem persists.	ECT Table is not received in the GDS stream.	
LEC Timeout	Clear	LEC received			
FPGA status	Set	FPGA Init failed to go high	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, notify customer service if the problem persists.	FPGA setup failure or the FPGA binary identity does not match the FPGA registers.	Major
FPGA status	Set	FPGA Init and Done failed to go low	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, notify customer service if the problem persists.	FPGA setup failure or the FPGA binary identity does not match the FPGA registers.	Major
FPGA status	Set	FPGA Init went LOW (CRC error)	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, notify customer service if the problem persists.	FPGA setup failure or the FPGA binary identity does not match the FPGA registers.	Major

Alarm	Message Type	Message	Cause/Remedy	Description	Severity
FPGA status	Set	FPGA Done failed to go high	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, notify customer service if the problem persists.	FPGA setup failure or the FPGA binary identity does not match the FPGA registers.	Major
FPGA status	Set	SW ver outside upper or lower limit	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, notify customer service if the problem persists.	FPGA setup failure or the FPGA binary identity does not match the FPGA registers.	Major
FPGA status	Set	FPGA ID does not match FPGA DESIGNATION	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, notify customer service if the problem persists.	FPGA setup failure or the FPGA binary identity does not match the FPGA registers.	Major
FPGA status	Set	FPGA ID does not match HW FPGA ID	Cause: Hardware issue. Remedy: Clear alarms, reset the unit, notify customer service if the problem persists.	FPGA setup failure or the FPGA binary identity does not match the FPGA registers.	Major
FPGA status	Clear	FPGA loaded successfully and reset			

Warnings

Warning	Message Type	Message	Cause/Remedy	Description
ASI TS Overflow	Set	ASI Output Overflow	Cause: Uplink settings may have changed since setting up the unit. Variable bit rate or statmuxed streams may be in use. Remedy: Increase the output rate, drop unreferenced content in DPM Options, and drop the programs that are not needed for downstream devices. Contact your (uplink) service provider to verify the expected bit rate settings.	The output rate is higher than level set by the user.
ASI TS Overflow	Clear	ASI Output Overflow Cleared		
MPoIP TS Overflow	Set	MPEGoIP Output Overflow	Cause: Uplink settings may have changed since setting up the unit. Variable bit rate or statmuxed streams may be in use. Remedy: Increase the output rate, drop unreferenced content in DPM Options, and drop the programs that are not needed for downstream devices. Contact your (uplink) service provider to verify the expected bit rate settings.	The output rate is higher than level set by the user.
MPoIP TS Overflow	Reset	MPEGoIP Output Overflow Cleared		

Warning	Message Type	Message	Cause/Remedy	Description
Transport Error	Set	Continuity Count Error	Cause: Possible uplink or signal issue. Remedy: Clear warnings, reset the unit, and notify customer service if the problem persists.	Transport packet continuity count jumped. Possible packet loss.
Transport Error	Set	Buffer Overflow	Cause: Possible uplink or signal issue. Remedy: Clear warnings, reset the unit, and notify customer service if the problem persists.	The transport stream is faster than the maximum buffer or the decode engines are having difficulty handling the data sent to them.
Transport Error	Set	Transport Error Indicator	Cause: Possible uplink or signal issue. Remedy: Clear warnings, reset the unit, and notify customer service if the problem persists.	Transport packets are marked as "errored" upstream of the decoder.
Transport Error	Set	Transport Rate Error: FPGA Overflow	Cause: Uplink settings may have changed since setting up the unit. Remedy: Increase the output rate, drop unreferenced content in DPM Options, and/or drop programs not needed for downstream devices. Contact your (uplink) service provider to verify the expected bit rate settings.	The output rate is higher than level set by the user.
Transport Error	Clear	Continuity Count Error Cleared		Trap expires after 30 seconds.
Transport Error	Clear	Buffer Overflow Cleared		Trap expires after 30 seconds.
Transport Error	Clear	Transport Error Indicator Cleared		Trap expires after 30 seconds.

Warning	Message Type	Message	Cause/Remedy	Description
Transport Error	Clear	Transport Rate Error: FPGA Overflow Cleared		Trap expires after 30 seconds.
CI Status	Set	Different CA Systems in Top/Bottom Slots	Cause: Different CA systems are used in the slots. Remedy: Replace the CA cards to use the same CA system.	Different CA Systems in Top/Bottom slots.
CI Status	Clear	OK		
Video Format Mismatch	Set	Video format mismatch		Video Format Mismatch.
Video Format Mismatch	Clear	Video format match		
Temperature Warning	Set	Temperature over Warning threshold	Cause: Room temperature too high, or air flow is blocked. Remedy: Check openings on front and rear panels for blockage. Lower the room temperature or improve air flow to the device.	Temperature is above normal operating range.
Temperature Warning	Clear	Temperature normal		
FPGA Temperature Warning	Set	Temperature over Warning threshold	Cause: Room temperature is too high, or air flow is blocked. Remedy: Check the openings on front and rear panels for blockage. Lower the room temperature or improve air flow to the device.	FPGA temperature is above normal operating range.
FPGA Temperature Warning	Clear	Temperature normal		

Warning	Message Type	Message	Cause/Remedy	Description
VBI Data	Set	2nd VBI PID attempt to write same line	Cause: Uplink configuration issue. Remedy: Contact uplink to verify expected VBI settings.	Conflicting VBI data on second VBI PID.
VBI Data	Clear	Line Collision Cleared		
TDT timeout #	Set	tdt timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Time Date Table was never received.
TDT timeout #	Set	tdt is lost	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	No longer receiving Time Date.
TDT timeout #	Clear	tdt fault cleared		
SDT timeout #	Set	sdt # timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Service Description Table was never received.

Warning	Message Type	Message	Cause/Remedy	Description
SDT timeout #	Set	sdt # is lost	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	No longer receiving Service Description.
SDT timeout #	Clear	sdt fault cleared		
PMT timeout #	Set	pmt # timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Program Mapping Table was never received.
PMT timeout #	Set	pmt # is lost	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	No longer receiving Program Mapping Table.
PMT timeout #	Clear	pmt fault cleared		
PAT timeout #	Set	pat # timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Program Association Table was never received.

Warning	Message Type	Message	Cause/Remedy	Description
PAT timeout #	Set	pat # is lost	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	No longer receiving Program Association Table.
PAT timeout #	Clear	pat fault cleared		
NIT timeout #	Set	nit timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Network Information Table was never received.
NIT timeout #	Set	nit is lost	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	No longer receiving Network Information Table.
NIT timeout #	Clear	nit fault cleared		
CAT timeout #	Set	cat timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Conditional Access Table was never received.

Warning	Message Type	Message	Cause/Remedy	Description
CAT timeout #	Set	cat is lost	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	No longer receiving Conditional Access Table.
CAT timeout #	Clear	cat fault cleared		
DRT timeout #	Set	drt # timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Disaster Recovery Table was never received.
DRT timeout #	Set	drt # is lost	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	No longer receiving Disaster Recovery Table.
DRT timeout #	Clear	drt fault cleared		
MCT Timeout #	Set	mct # timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Inband Control Table was never received.

Warning	Message Type	Message	Cause/Remedy	Description
MCT Timeout #	Set	mct # is lost	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	No longer receiving Inband Control Table.
MCT Timeout #	Clear	mct fault cleared		
ECT Timeout #	Set	ect # timed out	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	Event Control Table was never received.
ECT Timeout #	Set	ect # is lost	Cause: Uplink is not sending or is sending intermittently. Remedy: Clear warning. If the problem persists, determine if uplink is sending the current SI information table. Disable the warning if not using the table.	No longer receiving Event Control Table.
ECT Timeout #	Clear	ect fault cleared		
Memory Usage Host	Set	Excessive (stack/partition) memory usage	Cause: Possible software issue. Remedy: Clear warnings, reset the unit, and notify customer service if the problem persists.	SW exceeding allowable memory usage.
Memory Usage Host	Clear	Normal (stack/partition) memory usage		

Warning	Message Type	Message	Cause/Remedy	Description
Memory Usage Secondary	Set	Excessive (stack/partition) memory usage	Cause: Possible software issue. Remedy: Clear warnings, reset the unit, and notify customer service if the problem persists.	Software exceeding allowable memory usage.
Memory Usage Secondary	Clear	Normal (stack/partition) memory usage		
FPGA Code Version	Set	FPGA newer than SW, Supported=AAA, Running=BBB	Cause: FPGA version is incompatible with the software. Remedy: Select alternate FPGA, software versions, reset unit, notify customer service if problem persists.	FPGA version is incompatible with currently operating software. You may encounter operational difficulties
FPGA Code Version	Clear	FPGA code ver OK		
Ethernet PHY n	Set	Link is down	Cause: No ethernet cable connected, faulty cabling, multiple devices sharing MAC address on same IP segment, or possible HW issue. Remedy: Check cabling, check MAC addresses, clear warnings, reset the unit, and notify customer service if the problem persists.	Ethernet MAC PHY device is attempting to reconnect to external devices.
Ethernet PHY n	Clear	Connection OK		
FW: Resource Use Host	Set	Memory or List Near Full	Cause: Possible software issue. Remedy: Clear warnings, reset the unit, and notify customer service if the problem persists.	Software exceeding allowable usage of internal constructs.

Warning	Message Type	Message	Cause/Remedy	Description
FW: Resource Use Host	Clear	Normal Level		
FW: Resource Use Second	Set	Memory or List Near Full	Cause: Possible software issue. Remedy: Clear warnings, reset the unit, and notify customer service if the problem persists.	Software exceeding allowable usage of internal constructs.
FW: Resource Use Second	Clear	Normal Level		
Restore Failure Reason	Set	FTP Failed	Cause: FTP settings or the server may not be configured correctly. Remedy: Verify the FTP server configuration and permissions. Verify that FTP settings on the unit. Verify that the server is reachable from the client (such as configuring firewalls or network settings). Retry the Import operation.	FTP failed to connect to server or transfer file
Restore Failure Reason	Set	Not Accepted	Cause: Import file is either for a different product or the structure was not compatible with this unit. Remedy: Verify that the correct import file is being used and was created by this product. Verify that the file structure has not been corrupted. If the problem persists, notify customer service.	Import file was rejected and import did not occur

Warning	Message Type	Message	Cause/Remedy	Description
Restore Failure Reason	Set	Bad Content	Cause: Import file may be corrupted, or from a different version of application software. Remedy: Verify that the correct import file is being used and was created by this product. Verify that the file structure has not been corrupted. If the problem persists, notify customer service.	Item in import file is not valid for this software and import did not occur
SDI Aud SFR Data	Set	SDI Audio sampling frequency mismatch	Cause: SDI audio groups are not configured correctly, or the transport stream has changed the sampling rate of one of the audio streams. Remedy: Configure the SDI audio groups to ensure that all audio channels in a group have the same sampling frequency rate.	All audio channels in a given audio group within an SDI do not have identical sampling rate.
SDI Aud SFR Data	Clear	SDI Audio SFR Mismatch Cleared		

7

Customer Information

If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

Access your company's extranet site to view or order additional technical publications. For accessing instructions, contact the representative who handles your account. Check your extranet site often as the information is updated frequently.

A

Technical Specifications

Introduction

This appendix contains the technical specifications for the D9854 Advanced Program Receiver.

Note: The technical specifications are subject to change without prior notice.

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- L-Band Input and Processing 272
- Video Inputs/Outputs and Processing 276
- Transport Stream Outputs 282
- Control, Management and Data Interfaces 284
- Power and General Specifications 286

L-Band Input and Processing

General

Parameter	Specification
System	MPEG-2/DVB Compatible DVB-S EN 300 421, EN 300 468
Demodulation	DVB-S QPSK, DVB-S2 QPSK and 8PSK
Number of RF Inputs	4 (only one active at a time)

LNB LO Stability

DVB-S and DVB-S2

Symbol Rate	Stability
1 to 4.99 MSymbols/s	≤ ± 125 kHz
5.0 to 9.99 MSymbols/s	≤ ± 1.0 MHz
10.0 to 45 MSymbols/s	≤ ± 3.0 MHz

Parameter	Specification
LNB Phase Noise Requirement	-35 dBc/Hz at dF = 100 Hz -53 dBc/Hz at dF = 1 kHz -76 dBc/Hz at dF = 10 kHz -96 dBc/Hz at dF = 100 kHz -106 dBc/Hz at dF = 1 MHz -117 dBc/Hz at dF = 10 MHz

LNB Power and Control

Parameter	Specification
Voltage (RF1to RF3, RF4 does not have an LNB supply)	13 V Vertical/circular right, 18 V Horizontal/circular left Off
Current	350 mA maximum LNB Alarms: No load - 6 mA Overload - 360 mA minimum

DVB-S/DVB-S2

DVB-S/DVB-S2 Satellite Receiver

Parameter	Specification
L-Band Input	
Number of Inputs	4 (one active at a time)
Input Connector Type	F-type, female, 75 ohms
Input Impedance	75 ohms
Return Loss	> 10 dB
Isolation Between Inputs	> 40 dB
L-band Frequency	950 to 2150 MHz
Tuning Step Size	1 MHz
Receive Spectrum Sense	Normal and Inverted
L-Band Power	
Input Power Level per Carrier	-25 to -65 dBm (full transponder power)
DVB-S Modulation (EN 300 421)	
Modulation	QPSK
Convolutional FEC Rates	1/2, 2/3, 3/4, 5/6, 7/8
Symbol Rate Range	1.0 to 45 MSymbols/s

Parameter	Specification
Eb/No (C/N) Ratio	See DVB-S2 Satellite Receiver Input, DVB-S Eb/No (C/N) Ratio Table
DVB-S2 Modulation (EN 302 307)	
Modulation	QPSK, 8PSK
Pilots On/Off	Pilots On
QPSK LDPC FEC Rates	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
8PSK LDPC FEC Rates	3/5, 2/3, 3/4, 5/6, 8/9, 9/10
LDPC FEC Frame Length	Normal
Symbol Rate Range	1 to 30 Ms/s
Maximum Channel Bit Rate	90 Mb/s
Maximum User Bit Rate	78.55 Mb/s

DVB-S Eb/No (C/N) Ratio

Convolutional FEC Rate	Eb/No Ratio (dB) in Linear Channel and IF Loop configuration	C/N at DVB Threshold (BW = Symbol Rate)
1/2	4.5	4.1
2/3	5.0	5.9
3/4	5.5	6.9
5/6	6.0	7.9
7/8	6.4	8.5

C/N = Eb/No + 10 log (2 x FEC X 188/204)

The D9854 receiver displays the C/N Ratio.

DVB-S2 Error Rate Performance Es/No (C/N) Ratio

Mode	Simulated Es/No (dB) for FEC Frame length = 64,800	Typical Performance (dB) in Linear Channel and IF Loop configuration
QPSK 1/2	1.00	1.2
QPSK 3/5	2.23	2.4
QPSK 2/3	3.10	3.2
QPSK 3/4	4.03	4.2

Mode	Simulated Es/No (dB) for FEC Frame length = 64,800	Typical Performance (dB) in Linear Channel and IF Loop configuration
QPSK 4/5	4.68	4.8
QPSK 5/6	5.18	5.3
QPSK 8/9	6.20	6.4
QPSK 9/10	6.42	6.6
8PSK 3/5	5.50	5.8
8PSK 2/3	6.62	6.8
8PSK 3/4	7.91	8.1
8PSK 5/6	9.35	9.6
8PSK 8/9	10.69	10.9
8PSK 9/10	10.98	11.3

Video Inputs/Outputs and Processing

General

Parameter	Specification
System	MPEG-2/DVB Compatible EN 300 421, EN 300 468

Video Outputs

Analog SD Video Output

Item	Test Signal	Specification CVBS1	Specification CVBS2
Number of Channels		One SD source program	One SD source program
Video Decompression		MPEG-2 4:2:0	MPEG-2 4:2:0
Output Impedance		75 Ω	75 Ω
525 Line			
Bar level	NTC-7 comp	700 mV ± 7 mV (± 1%)	700 mV ± 35 mV (± 5%)
Line Time Distortion	VITS17	≤ 1%	≤ 1%
Bar Tilt	NTC-7 comp	< 0.5%	< 0.5%
Sync Level	NTC-7 comp	40 IRE ± 0.5 IRE	40 IRE ± 2.0 IRE
DC Offset	NTC-7 comp	± 100 mV	± 100 mV
Chrominance-to-Luminance Gain Inequality	NTC-7 comp	100 ± 5%	100 ± 5%
Chrominance-to-Luminance Phase Inequality	NTC-7 comp	< 20 ns	< 20 ns
K factor K 2T	NTC-7 comp	< 1%	< 1%
Jitter		< 5 ns	< 5 ns

Item	Test Signal	Specification CVBS1	Specification CVBS2
Frequency Response	FCC multi-burst	0.5 MHz, 0 dB 1.25 MHz, 0 dB ± 0.2 dB 2 MHz, 0 dB ± 0.2 dB 3 MHz, 0 dB ± 0.3 dB 3.58 MHz, 0 dB ± 0.3 dB 4.1 MHz, 0 dB ± 0.3 dB	0.5 MHz, 0 dB 1.25 MHz, 0 dB ± 0.2 dB 2 MHz, 0 dB ± 0.2 dB 3 MHz, 0 dB ± 0.3 dB 3.58 MHz, 0 dB ± 0.3 dB 4.1 MHz, 0 dB ± 0.3 dB
Differential Gain	NTC-7 comp	< 3.0%	< 3.0%
Differential Phase	NTC-7 comp	< 4°	< 4°
Luminance Non-linearity		< 5%	< 5%
Line Time Distortion	NTC-7 comp	≤ 1%	≤ 1%
Weighted Signal Video-to-Noise	50% Grey Field	≤ -70 dB rms	≤ -70 dB rms
Weighted Signal Video-to-Noise	Luminanace Ramp	≤ -55 dB rms	≤ -55 dB rms
Return Loss		DC to 10 MHz, > 30 dB	DC to 10 MHz, > 30 dB
625 Line			
Bar level	VITS17	700 mV ± 7 mV (± 1%)	700 mV ± 35 mV (± 5%)
Line Time Distortion	VITS17	≤ 1%	≤ 1%
Bar Tilt	VITS17	< 0.5%	< 0.5%
Sync Level	VITS17	300 mV ± 3 mV	300 mV ± 15 mV
DC Offset	VITS17	± 100 mV	± 100 mV
Chrominance-to-Luminance Gain Inequality	Colour Bars	100 ± 5%	100 ± 5%
Chrominance-to-Luminance Phase Inequality	Colour Bars	< 20 ns	< 20 ns
K factor K 2T	VITS17	< 1%	< 1%
Jitter		< 5 ns	< 5 ns

Item	Test Signal	Specification CVBS1	Specification CVBS2
Frequency Response	VITS18	0.5 MHz, 0 dB 1 MHz, 0 dB ± 0.2 dB 2 MHz, 0 dB ± 0.3 dB 4 MHz, 0 dB ± 0.3 dB 4.8 MHz, +0 dB, -0.5 dB	0.5 MHz, 0 dB 1 MHz, 0 dB ± 0.2 dB 2 MHz, 0 dB ± 0.2 dB 4 MHz, 0 dB ± 0.3 dB 4.8 MHz, +0 dB, -0.5 dB
Differential Gain	VITS330	< 3.0%	< 3.0%
Differential Phase	VITS330	< 3°	< 3°
Luminance Non-linearity	VITS17	< 5%	< 5%
Weighted Signal Video-to-Noise	50% Grey Field	≤ -70 dB rms	≤ -70 dB rms
Weighted Signal Video-to-Noise	Luminanace Ramp	≤ -55 dB rms	≤ -55 dB rms
Return Loss		DC to 10 MHz, > 30 dB	DC to 10 MHz, > 30 dB

Analog SD Video Output, CVBS1 and CVBS2 for monitoring

Item	Specification
Number of Channels	One down-converted source HD program
Video Decompression Type	MPEG-2 4:2:0
Output Level	1.0 Vpp ± 5%
Output Impedance	75 ohms

HD Component Video Output (Monitoring Output)

Item	Test Signal	Typical Performance Values	
		Y	Pb, Pr
Amplitude	100% Color Bars	700 mV ± 5%	700 mV ± 5%
Sync Amplitude	100% Color Bars	300 mV ± 5%	300 mV ± 5%
Bandwidth	Multi-burst	DC to 30 MHz, ± 0.6 dB	DC to 15 MHz, ± 0.6 dB
Noise, Unified Weighting	Flat Field	-70 dB	-70 dB

Linearity	5-step	3%	3%
Interchannel Delay	100% Color Bars	2 ns	2 ns
DC Offset		± 50 mV	± 50 mV
Return Loss		DC to 30 MHz, -20 dB	DC to 30 MHz, -20 dB

Aspect Ratio

Item		**Specification**	
Aspect Ratio Conversions for Down-Conversion		**Aspect Ratio Conversions for SD Programs**	
4:3	**16:9**	**4:3**	**16:9**
16:9 Letterbox 14:9 Letterbox Center	Center Cutout	16:9 Letterbox 14:9 Letterbox Center Cutout	Scale to 16:9

Embedded Data in SDI

VBI Processing

Item	**Specification**
Closed Captioning	
Output formats	SMPTE-334M embedded in HD-SDI

Embedded Audio

Item	**Specification**
Format	According to SMPTE-299M
Audio sampling frequency	48 kHz locked to the video. According to SMPTE-272M
Resolution	20 bits

Audio Outputs

Analog Audio Outputs

Item	Specification
Number of Channels	2 stereo pairs/4 mono channels, 5.1 channel downmix Audio decompression: MPEG or Dolby Digital. HE-AAC single stereo pair or Dolby Digital Plus single stereo pair available as future software download.
Frequency Response	±0.5 dB, 20 Hz to 20 kHz (ref., 100 kilohms)
Total Harmonic Distortion	< 0.3% at 1 kHz (ref. 100 kilohms)
Dynamic Range	85 dB (CCIR/Arm weighting)
Crosstalk	80 dB at 1 kHz (typical)

Digital Audio Outputs

Item	Specification
Number of Channels	2 (one stereo channel each)
Format	AES-3id
Connector	BNC

Conditional Access

Item	Specification
PowerVu CA	DES or DVB
DVB Scrambling	BISS Mode 1, BISS Mode E
DVB-CI (Future Use)	Interface: 2 CI slots - EN 50221 CA Method: Multicrypt, Simulcrypt, Roscrypt (CI only supports one Roscrypt CAM at a time) CAS: Irdeto, Viaccess, Nagravision, Conax CAS: MediaGuard, Cryptoworks available in an anticipated future software release **Note:** Viasat (uses NDS/VideoGuard) only authorizes decoders equipped with an ASI output to receive/decrypt Viasat-encrypted programs.

Transport Stream Outputs

ASI Output

Item	Specification
Number of outputs	1
Type of connector	75 ohms BNC
Output impedance	75 ohms according to EN 50083-9
Data amplitude	800 mV peak-peak ± 10% according to EN 50083-9
Return loss	>17 dB, 27 to 270 MHz
Transport stream bit rate	1 to 120 Mbit/s ± 100 ppm
ASI bit rate	200 Mbit/s ± 100 ppm
Transport stream formats	According to EN 50083-9 188 bytes structure 204 bytes without Reed Solomon Burst or packet format

MPEGoIP Output (optional)

Item	Specification
Number of outputs	1
Type of connector	RJ-45, 10/100/1000 BASE-T
Output modes	UDP RAW, RTP
IP Addressing	Multicast
TS Streaming	MPTS
TS Bit Rate	1 to 120 Mbps

MPE Output

Item	Specification
Number of Outputs	1
Type of connector	RJ-45, 100/1000 BASE-T
Output modes	IPv4 datagrams
IP Addressing	Multicast
TS Input	up to 5 PIDs
Bit Rate	up to 10 Mbps (for 1500 byte packets)

Control, Management and Data Interfaces

Ethernet Management Interface

Item	Specification
Number of connectors	1
Type of connector	Eight-pin RJ-45
Ethernet type	100/1000 BASE-T
Required setup	IP address, default gateway and subnet mask

Ethernet Data Interface

Item	Specification
Number of connectors	1
Type of connector	Eight-pin RJ-45
Ethernet type	100/1000 BASE-T
Required setup	IP address, default gateway and subnet mask

RS-232 Data Interface

Item	Specification
Connector type	9-pin sub-D female
Data rates	RS-232 asynchronous data at selectable rates up to 38.4 kb/s: 300, 1200, 2400, 4800, 9600, 19,200, 38,400 b/s

Alarm Interface

Item	Specification
Number of outputs	1, with one set of contacts closed and one set open during normal operation.
Type of connector	15-pin sub-D female

Item	Specification
Max. voltage	40 V peak
Max. current	0.5A

Contact Closure Interface

Item	Specification
Connector type	15-pin sub-D female
Minimum duration of event guaranteed to be detected	250 ms, 1 frame period, e.g., for 1080i/25 Hz 40 ms for DPI applications
Max. on generator impedance	100 ohms
Min. off generator impedance	100 kilohms

Power and General Specifications

General

Item	Specification
LCD	2 lines of 40 characters, backlit LCD.
Keypad	Arrow keys, 0 to 9, SELECT, MENU, INFO, ADV, MAP, APPLY and NAV keys.
LEDs	Green LED for Signal status. Red LED for Alarm indication.

Power

AC Power Connector

Item	Specification
Type of connector	IEC 320 style C14 appliance receptable
AC input	100 to 240 V AC, 50/60 Hz
Power	37 W max
Current	0.34 A @ 240 V AC typical, 0.5 A @ 120 V AC typical
Power Quality	ANSI/IEEE Std C62.41.1-2002

Power

To operate the receiver, you must connect it to an AC power source.

WARNING:

Make sure that at least one end of the power cable(s) remains easily accessible for unplugging, if you need to switch off the unit. For example: Ensure that the socket outlet is installed near the product.

WARNING:

To avoid electrical shock, connect the three-prong plug on this product to an earth-grounded three-pin socket outlet only.

Mechanical

Item	Specification
Height	1 U (4.37 cm) (1.72″)
Width	44.07 cm (17.35″)
Depth	35.0 cm (13.78“)
Weight	4.5 kg (10 lb.)

Environment

Item	Specification
Storage	
General	The product is within the original packaging.
Humidity	5 – 95% non-condensing
Temperature	-20 – +70°C (-4 to 158°F)
Operation	
Humidity (non-condensing)	95% humidity is valid up to 40°C 91% humidity is valid up to 45°C 70% humidity is valid up to 50°C
Temperature	0°C – +50°C (32°F to 122°F)
Altitude	
Operating	10,000 ft. (3048 m) max.
Non-operating	30,000 ft. (9144 m) max.

B

Default Settings

Introduction

The D9854 Advanced Program Receiver is factory configured with default settings unless you have requested a custom factory configuration. This appendix lists the factory default settings.

In This Appendix

- Factory Default Settings 290
- DPM Default Settings for Different Output Modes 297

Factory Default Settings

Administration

Parameter	Default
Lock Level	0
Password	1234
KB Lock	Disable
KB Lock Timeout	60
LCD Contrast	30
DL Mode	Always
Date Format	YYY_MM_DD
Time Format	24 Hr
GMT Off	+05.30

RF Input

Parameter	Default
Tune Mode	Basic
CA Ctl	Std
Select	UserCfg
LO1 (GHz)	5.15
LO2 (GHz)	0.0
Crossover (GHz)	0.0
OrbPos	0.0
E/W	NA
Pol	H (horizontal)
Freq (GHz)	3.449
Sym Rate	28.3465 MS/s
FEC	Auto
Modulation	DVB-S
Roll-off	.35

Parameter	Default
InputIQ	Auto
NetID	1
LNB Power	Off
22kHz	Off

Tune Mode

Parameter	Default
Service List Mode	Rigorous
Frequency Tuning	NIT
Use BAT in Service List	No
Use NIT in Service List	Yes
Use SDT in Service List	Yes
Use PAT in Service List	Yes

IP

Note: A factory reset does not change the IP settings.

Parameter	Default
Port ID	1
V4/V6	IPv4
IP Address	192.131.244.6
Mask	24
Gateway	192.131.244.254
SNMP Read Community String	public
SNMP Write Community String	public
Multicast Forwarding	Forward All, if Port ID is set to 2
SNTP Server	0.0.0.0
SNTP Enable	No

Parameter	Default
Password Complexity	Full Complexity Checking

Video

Parameter	Default
PV Format	Auto
SD Format	Auto
Tri-Synch (Front Panel only)	Disabled
TV A/R	4:3
Convert	None
WSS Mode	Passthrough
Enable Banner Display (Web GUI only)	Enable

Audio

Parameter	Default
Stereo/Mono	Stereo
AC3 Compression	RF Mode
Left (dB)	0
Right (dB)	0
PMT Source	AUD1 for Audio 1 and AUD2 for Audio 2
DDP (Front Panel only)	Trans
Digital Out Pref	PCM Samples

Subtitles

Parameter	Default
Op Mode	Off
Select Language By	Language Entry
Language List	eng

Parameter	Default
PMT Order	First
Entry	eng
Imitext Position	Standard
ForeGnd	Auto
BackGnd	Auto

CI

Parameter	Default
Decrypt	ON
CI Slot	Top
Query	Disabled
Auto Reset	Disabled
List Mgmt	AddDel
TS_ON_ID	Disable

Cueing

Parameter	Default
Cueing Mode	Trigger
Trigger Polarity	High
Repeat	3
Tone (ms)	40
Silence (ms)	40
Relay Mode	Alarm
Cue Trigger Bit	1
State	Disable
Mode	*
Delay (sec)	1

TS Out - ASI

Parameter	Default
Name	ASI
Rate Control	User
User Rate	68.5 Mbps
Output Mode	No Output
Descramble Mode	Descrambled
Insert Null Packet	Yes

TS Out - MOIP1

Parameter	Default
Name	MOIP1
Rate Control	User
User Rate	0
Output Mode	No Output
Descramble Mode	Descrambled
Insert Null Packet	Yes
Instance Name	MPEG over IP 1
MOIP	UDP
Send SAP	No
SAP ID	Cisco Default SAP
DestAddr	225.1.1.1
UDPPort	49152
SrcPort	0
TS/IP	7
Min IP/s	0
PCR@IP Start	Yes
Mgmt Port Mode	No Output
DATA Port Mode	Always output
PCR Addition	Yes

DPM - ASI

Parameter	Default
PMT	8192
Act	Drop
OutCh	0
PMT	8191
Map Mode	SVC ID & PID
Duplic Mode	Pkt Copy
Unref	Drop
PSI Options	Drop All
PSI Rate	SA Std
Service ID	Valid Ch
PAT	Pass
CAT	Pass
PMT	Pass
TSDT	Pass
NIT	Pass
NITO	Pass
SDT	Pass
SDTO	Pass
BAT	Pass
EIT	Pass
TDT	Pass
RST	Pass
TOT	Pass
DIT	Pass
SIT	Pass
ECM	Pass
EMM	Pass
DRT	Pass

Parameter	Default
CDT	Pass

Noise Cutoff

Parameter	Default
Trnsprt (DVB-S/DVB-S2 Marg) Cutoff	0.0
Trnsprt (DVB-S/DVB-S2 Marg) Restore	0.1
Audio (DVB-S/DVB-S2 Marg) Cutoff	0.0
Audio (DVB-S/DVB-S2 Marg) Restore	0.1
Muting Control	Enable

Import/Export (Web GUI only)

Parameter	Default
Settings File Name	file name
FTP Server IP Address	192.168.0.100
FTP Port Number	21
FTP User Name	user
FTP Password	USER

DPM Default Settings for Different Output Modes

The DPM parameters are preset to default settings for each DPM Output Mode.

The default settings for particular Output modes have been preset to optimize the output when PID mapping is required. If the DPM parameters are changed to values which switch the receiver to Full DPM Control, the receiver may enter a condition where conflicts in the settings may occur, which may require manual manipulation of the DPM or output parameters to obtain the desired output.

If you change any of the DPM parameters listed in this table in any of the MAP Output Modes, the receiver Output Mode will change to DPM Full Control, but will retain the current settings. This is noted in the table below.

Output Mode Changes to Full DPM Control with DPM Parameter Change	**No Output Mode Change with DPM Parameter Change**
MAP Passthrough	No Output
MAP Svc Chans Only	Passthrough

The fields labeled "Any" in the table below are not used, in which case, the Output Mode will not change if the parameter is changed. However, if you change any of the other parameters listed in the table for the MAP output modes, the Output Mode will change to Full DPM Control.

Output Mode	**No Output**	**Passthrough**	**Service Chans Only**	**MAP Passthrough**	**MAP Svc Chans Only**	**Full DPM Control**
Rate Control	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)
User Rate	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)
Descramble Mode	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)
Regenerate	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)
Insert Null Packet	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)	Any (unchanged)
Map Mode	Any (not used)	Svc ID	Svc ID	Svc Id & PID	Svc ID & PID	Actual Value
Duplic Mode	Any (not used)	PSI Remap	PSI Remap	Pkt Copy	Pkt Copy	Actual Value
Unref	Drop	Pass	Drop	Pass	Drop	Actual Value

Output Mode	No Output	Passthrough	Service Chans Only	MAP Passthrough	MAP Svc Chans Only	Full DPM Control
PSI Options	Drop	Ctl By Table	Ctl By Table	Ctl By Table	Ctl By Table	Actual Value
PSI Rate	Any (not used)	SA Std	SA Std	SA Std	SA Std	Actual Value
Svc ID	Any (not used)	Valid Ch	Valid Ch	Valid Ch	Valid Ch	Actual Value
PAT	Not Displayed	Pass	Regen	Regen	Regen	Actual Value
CAT	Not Displayed	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	Actual Value
PMT	Not Displayed	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	Regen	Regen	Actual Value
TSDT	Not Displayed	Pass	Pass	Pass	Pass	Actual Value
NIT	Not Displayed	Pass	Regen	Regen	Regen	Actual Value
NITO	Not Displayed	Pass	PwRc	PwRc	PwRc	Actual Value
SDT	Not Displayed	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	Regen	Regen	Regen	Actual Value
SDTO	Not Displayed	If Descramble Mode is set to Descrambled, it is set to Regen; otherwise, it is set to Pass	PwRc	PwRc	PwRc	Actual Value

Output Mode	No Output	Passthrough	Service Chans Only	MAP Passthrough	MAP Svc Chans Only	Full DPM Control
BAT	Not Displayed	If Descramble Mode is set to Descrambled, it is set to PwRC; otherwise, it is set to Pass	PwRC	PwRC	PwRC	Actual Value
EIT	Not Displayed	Pass	Pass	Pass	Pass	Actual Value
TDT	Not Displayed	Pass	Pass	Pass	Pass	Actual Value
RST	Not Displayed	Pass	Pass	Pass	Pass	Actual Value
TOT	Not Displayed	Pass	Pass	Pass	Pass	Actual Value
DIT	Not Displayed	Pass	Pass	Pass	Pass	Actual Value
SIT	Not Displayed	Pass	Pass	Pass	Pass	Actual Value
ECM	Not Displayed	Pass	Pass	Pass	Pass	Actual Value
EMM	Not Displayed	Pass	Pass	Pass	Pass	Actual Value
DRT	Not Displayed	Pass	Pass	Pass	Pass	Actual Value
CDT	Not Displayed	Pass	Pass	Pass	Pass	Actual Value
PE Action (all PEs)	Drop	Pass	Pass	Map	Map	Actual Value

C

Lock Levels

Introduction

This appendix contains the lock levels for the D9854 Advanced Program Receiver.

In This Appendix

- D9854 Receiver Lock Levels 302

D9854 Receiver Lock Levels

Four (4) lock levels (0, 1, 2, 3, and 4) are available for protecting your receiver and its settings against unauthorized use or modification (see the table below for full details).

Level	Description
0	All settings are unlocked (receiver lockout disabled)
1	All settings are unlocked except Factory Reset, Password options and receiver parameters.
2	All settings are unlocked except RF and ASI Input Tuning parameters.
3	All settings locked (access via password only), except IP address and RF power.
4	All settings locked (can be changed via PNC uplink signal only)

If a change made to the current Lock Level setting is not saved, the previously saved setting is restored.

Note: The user cannot select NONE as a Lock Level.

Video

Parameter	Lock Level
PV Format	2
SD Format	2

Aspect Ratio

Parameter	Lock Level
SD Aspect Ratio	2
AR Selection	2
AR Conversion	2
WSS Mode	2

Closed Caption

Parameter	Lock Level
Preferred Mode	2

Subtitles

Parameter	Lock Level
Op Mode	2
Lang Menu	2
Lang List	2
PMT Order	2
Manual Entry	2
Imitext Position	2
Foreground	2
Background	2

Download

Parameter	Lock Level
Mode	2
DL Type	2
DL Bank	2
Command	2

Runnable Application

Parameter	Lock Level
Index	2
Select	2
Erase	2

Runnable FPGA

Parameter	Lock Level
Index	2
Select	2
Erase	2

Audio

Parameter	Lock Level
Audio Sel Key	2
Mode	2
AC3 Comp	2
Left	2
Right	2
PMT Source	2

PV Muting Thresholds

Parameter	Lock Level
Transport Cutoff	2
Transport Restore	2
Audio Cutoff	2
Audio Restore	2

LDPC Muting Thresholds

Parameter	Lock Level
Transport Cutoff	2
Transport Restore	2
Audio Cutoff	2

Parameter	Lock Level
Audio Restore	2

Muting Thresholds

Parameter	Lock Level
Restore Defaults	2
Control	2

Fixed PID

Parameter	Lock Level
CH	1
Ch Stream IDX	1
PID	1
Stream Type	1

IP

Parameter	Lock Level
Port ID Key	3
Name	3
V4 IP Addr	3
V4 Mask	3
V4 Def Gateway	3

SNMP Comm

Parameter	Lock Level
Read String	2
Write String	2

Parameter	Lock Level
Sys Name	2
Sys Location	2
Sys Contact	2

Trap Destination

Parameter	Lock Level
Index	2
IP Addr	2

Active Settings

Parameter	Lock Level
ACQ Mode	1
CA Mode	1
Input Sel	1
Freq Sel	1
Ser List Mode	1
Use BAT	1
Use NIT	1
Use SDT	1
Use PAT	1

Active Tuning

Parameter	Lock Level
Net ID	1
ASI	1
RF1	1
RF2	1

Parameter	Lock Level
RF3	1
RF4	1
Input	1
Modulation	1
Frequency	1
Sym Rate	1
FEC	1
LNB Power	3
Polarization	1
IQ	1
22 kHz Tone	1
Rolloff	1

Active Inputs

Parameter	Lock Level
RF Sel Key	1
LNB Type	1
LNB Trim1	1
LNB Trim2	1
Crossover	1
LO Select	1
LOF1	1
LOF2	1
Orbital Pos	1
E/W Flag	1
Orb Polarization	1

BISS

Parameter	Lock Level
Mode	2
BISS 1 SW	2
BISS E SW	2
BISS E ID	2

Program Entry

Parameter	Lock Level
PE Index	2
Channel Num	2
CA Resource	2
Resource ID	2
CH Cmd	2

Program Status

Parameter	Lock Level
PE Index	2
Channel Num	2

Decode Enable

Parameter	Lock Level
Decoder	2
Enable	2

Power On

Parameter	Lock Level
Clr Reset Count	0

User Setting

Parameter	Lock Level
Date Format	2
Time Format	2
GMT Offset	2
KB Lock Enable	2
KB Lock Timeout	2
M1 Port Type	2
M2 Port Type	2
Contrast	2
Menu Type	2
Clear ADP	2
Regenerate	2
Banner	2
Reboot	2

Admin

Parameter	Lock Level
Lock Level	3
Lock Level Pwd	3
Lock Level Pwd Cur	0
Lock Level Pwd New	0
Lock Level Pwd Conf	0
Factory Reset	0
Clean Unused Tbls	0

DPM Transmit

Parameter	Lock Level
Output Mode	2
Descramble Mode	2
Rate Ctrl	2
Rate	2
Ins Null Pkt	2

DPM Global Configuration

Parameter	Lock Level
Instance ID	2
Instance Name	2
Map Mode	2
Dup Method	2
Reg Rate	2
Unref Content	2
PSI Output	2
PSI PAT	2
PSI CAT	2
PSI PMT	2
PSI TSDT	2
PSI NIT	2
PSI NITO	2
PSI SDT	2
PSI SDTO	2
PSI BAT	2
PSI EIT	2
PSI TDT	2
PSI ST	2

Parameter	Lock Level
PSI RST	2
PSI TOT	2
PSI DIT	2
PSI SIT	2
PSI ECM	2
PSI EMM	2
PSI DRT	2
PSI CDT	2
Svc ID Output	2
Modified	2
Activate	2

DPM PE Maps

Parameter	Lock Level
Instance ID	2
PE	2
Action	2
PMT PID	2
Output Channel	2
PID Map	2

DPM PID Map

Parameter	Lock Level
Index	2
In Use	2
Instance Name	2
PE	2
Row	2
Stream Type	2

Parameter	Lock Level
Stream CAT	2
Stream Inst	2
Action	2
Output PID	2

IP Configuration

Parameter	Lock Level
Enabled	2
Instance Name	2
TP Proto	2
Dest IP Addr	2
SAP Multicast IP Addr	2
Dest Port	2
Src Port	2
Min IP Per Sec	2
PCR Addition	2
PCR Start New Pkt	2
Send Sap	2
Send Sap Str	2
Max TPKT Per IP	2
SAP Str	2
Intf Mode 1	2
Intf Mode 2	2

Alarm Setting

Parameter	Lock Level
Enable	2
Relay	2
Trap	2

Warning Setting

Parameter	Lock Level
Name	2
Enable	2
Relay	2
Trap	2

Fault Status

Parameter	Lock Level
Text ID	2
Fault Num	2
Name	2
Type	2
Severity	2
Last Date Time	2
Trap State	2
Details	2
Relay	2

Fault History

Parameter	Lock Level
Sequence	2
Name	2
Type	2
Set Date Time	2
Reset Date Time	2
State	2
Details	2

Log History

Parameter	Lock Level
Sequence	2
Cur Date	2
Cur Time	2
Message	2

D

Compliance

Introduction

This appendix contains the compliance information for the D9854 Advanced Program Receiver.

In This Appendix

- Applicable Standards and Notices 316
- Declaration of Conformity 318

Applicable Standards and Notices

Safety

The D9854 Advanced Program Receiver has been approved for safety by the Standards Council of Canada and the OHSA (NRTL) Accredited Testing Laboratory to the following standards:

CAN/CSA C22.2 No. 60065-03 Incl. AM1 - Audio, Video and Similar Electronic Apparatus - Safety Requirements

UL Std. No. 60065-2007 - Audio, Video and Similar Electronic Apparatus - Safety Requirements

Also, this product is being evaluated under the IECEE CB scheme to the following international standard:

IEC 60065 Edition 7 (2001) included Amendment 1

For the CB report and Certificate, the product is evaluated for the country differences outlined in CB Bulletin 110A:

National Differences: AR, AT, AU, BE, CA, CH, CS, DE, DK, ES, FI, FR, GB, GR, HU, IE, IL, IT, MY, NL, NO, PL, PO, SE, SG, SI, SK, UA, US, YU and Group Differences. In addition, JP, KR & CN National Differences of CB Bulletin

EMC

Electrostatic Discharge (ESD) results from the static electricity buildup on the human body and other objects. This static discharge can degrade components and cause failures.

Take the following precautions against electrostatic discharge.

Use an anti-static bench mat and a wrist strap or ankle strap designed to safely ground ESD potentials through a resistive element.

Keep components in their anti-static packaging until installed.

Avoid touching electronic components when installing a module.

Electromagnetic Compatibility Regulatory Requirements

Ethernet cables should be of single-shielded or double-shielded type. Coaxial cables should be of the double-braided shielded type. Where this equipment is subject to USA FCC and/or Industry Canada rules, the following statements apply:

FCC Notices

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions supplied in this manual may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception (which can be determined by turning the equipment off and on), the user is encouraged to try to correct the interference by one or more of the following measures:

1 Reorient or relocate the television receiving antenna.

2 Increase the separation between the equipment and the receiver.

3 Connect the equipment to an AC outlet on a circuit different from that to which the receiver is connected.

4 Contact your dealer/ reseller or an experienced radio/ TV technician for help.

The user may find the booklet "Interference handbook" prepared by the Federal Communications Commission helpful. This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, stock no. 004-000-00450-7.

Shielded cables should be used to interconnect this device with any other/peripheral equipment (i.e., data sources, terminals, monitors, etc.) to ensure compliance with Class B limits. Failure to do so may result in radio or TV interference. Cables should be of braided shield construction with metal end shells.

Industry Canada Notice

This digital apparatus does not exceed the limits for Class B radio noise emissions from digital apparatus as set out in the radio interference regulations of the Industry Canada.

Le present appareil numerique n'emet pas de bruites radioelectriques qui dépassant les limites applicables aux appareils numeriques de Class B prescrites dans le reglement sur le brouillage radioelectrique edicte par Industrie Canada.

Unauthorized Modifications

The manufacturer is not responsible for any radio or TV interference resulting from unauthorized modifications made to this equipment. It is the responsibility of the user to correct such interference at his own expense.

Declaration of Conformity

DECLARATION OF CONFORMITY
with regard to the Directives 2006/95/EC (LVD) and 2004/108/EC (EMC)

Cisco Systems Inc & all its affiliates
Headquarters:
170 West Tasman Drive
San Jose, CA 95134 - USA

Declare under our sole responsibility that the product,

Brand name: *Cisco*
Model number: *D9854 / D9854-I*
Model name: *Advanced Program Receiver*

Fulfils the essential requirements of the Directives 2006/95/EC and 2004/108/EC.

With regard to the Directives 2006/95/EC and 2004/108/EC, the following standards were applied:

Number and Date of Issue	Title of Standard
EN 60065:2002/A11:2008	- Audio, video and similar electronic apparatus – Safety requirements
EN 55022:2006, Class B	- Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Devices
EN 55013:2003	- Electromagnetic Compatibility Requirements - Sound and Television Broadcast Receivers and Associated Equipment
EN 55024:1998 +A1:2001 & +A2:2003	- Information technology equipment - Immunity characteristics - Limits and methods of measurement
EN 61000-3-2: 2001+A1+A2	- Electromagnetic Compatibility - Part 3: Limits Section 2: Limits for Harmonic Current Emissions (Equipment Input Current less than 16A per phase)

The product carries the CE Mark, which was first affixed in 2008: CE 08

Date & Place of Issue: 1 July 2012 , Scarborough ON, Canada

Signature(s):

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D9854_Cisco_DMN_EU_DOC3

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