



CW_EPG VERSION 4.4.3

INTRODUCTION

[The Cliff Watson Electronic Program Guide](#) (CW_EPG) works cooperatively with [HD Homerun](#)[®] (HDHR) tuners and the [MyHD](#)[™] and FusionHDTV[™] applications to improve your television-scheduling and schedule-viewing experience. CW_EPG automatically seeks and sets up captures of programs that you select by name, genre, actor, etc. and it can also coordinate the scheduling of all the HDHR, MyHD, and Fusion tuners using all the computers on your LAN.

HOW DOES IT WORK?

CW_EPG downloads from your [Schedules Direct](#) account (\$25/year after a 7-day free trial) a complete catalog of television shows for all your channels for the next 12 days (the "EPG"). You can view that information in the CW_EPG app and easily schedule recordings manually, but that's just the beginning.

You can have CW_EPG automatically update the EPG listings daily and use the current data to schedule recordings automatically on all your network-connected (HDHR, MyHD, and FusionHDTV) tuners. The automatically scheduled recordings are based on matches to the list of shows that you provide via the CW_EPG control panel. In other words, CW_EPG gives you "season passes" to record all your favorite shows.

CW_EPG's ability to manage scheduled events for HDHR, MyHD, and FusionHDTV hardware gives you a convenient single interface to manage your scheduled recordings. Rather than dealing with several interfaces and manually splitting events between tuners and computers, you just tell CW_EPG how you want to use your tuners (primary, secondary, etc.). Events are then scheduled to all devices based on the priorities you have defined.

With CW_EPG the end result is a standard transport-stream file, but captures are mapped to your tuners using CW_EPG's 'brains'. CW_EPG hands the appropriate tuner software one-time tasks that make sure you record all of the shows that you have specified by name or pattern, no matter when or on what channel they appear.



GETTING STARTED

COMPONENTS REQUIRED

1) Vendor's application to support your tuner hardware:

- HDHR firmware 20100121 or newer and Silicon dust "Windows software" (not the Win10 app from the Microsoft Store).
- MyHD version 1.66.1u (same as "1.66.1e")
- FusionHDTV version 3.6 or newer

Before you try to set up CW_EPG: Make sure to install and **fully configure** the HDHR software and vendor applications for all of your tuners on each of the relevant PCs. Also, for Fusion or MyHD, whenever a tuner configuration is changed (e.g., by moving a USB tuner from one port to another) make sure to execute the vendor application at least once before again running CW_EPG.

NOTE: After an OTA "repack" channel-lineup change, you must rescan **all** tuners and restart CWHelper (See Capture Manager and Known Issues sections). For HDHR units, you can complete the scans for all tuners via the HDHomerun_setup utility with **one scan per antenna on each PC.**

2) A Data Direct (aka Schedules Direct) user account, setup & configured. (See Step 1 below. This is required before CW_EPG can operate!)

3) The current CW_EPG setup executable file [from the link on the CW EPG AVS Forum thread.](#)

STEPS REQUIRED (UPGRADERS: SKIP TO SECTION "GETTING UPDATED")

1) GET A SCHEDULES DIRECT ACCOUNT AND CONFIGURE IT FOR YOUR CHANNELS

- a) Register for an ID at <http://www.schedulesdirect.org/> (fee required, after 7-day free trial)
- b) After signup is complete and before running CW_EPG, you must define a channel lineup at the Schedules Direct website. This is where you tell Schedules Direct which of the available local [OTA](#) (over the air) and cable stations you receive and want to have listings for. NOTE: The more channels you select, the longer it will take to process the guide data. It is **highly** recommended to select only the channels that you actually wish to record (or display in MyHD's [OSD](#) [on-screen display] EPG table).



2) SET UP THE CW_EPG PROGRAM

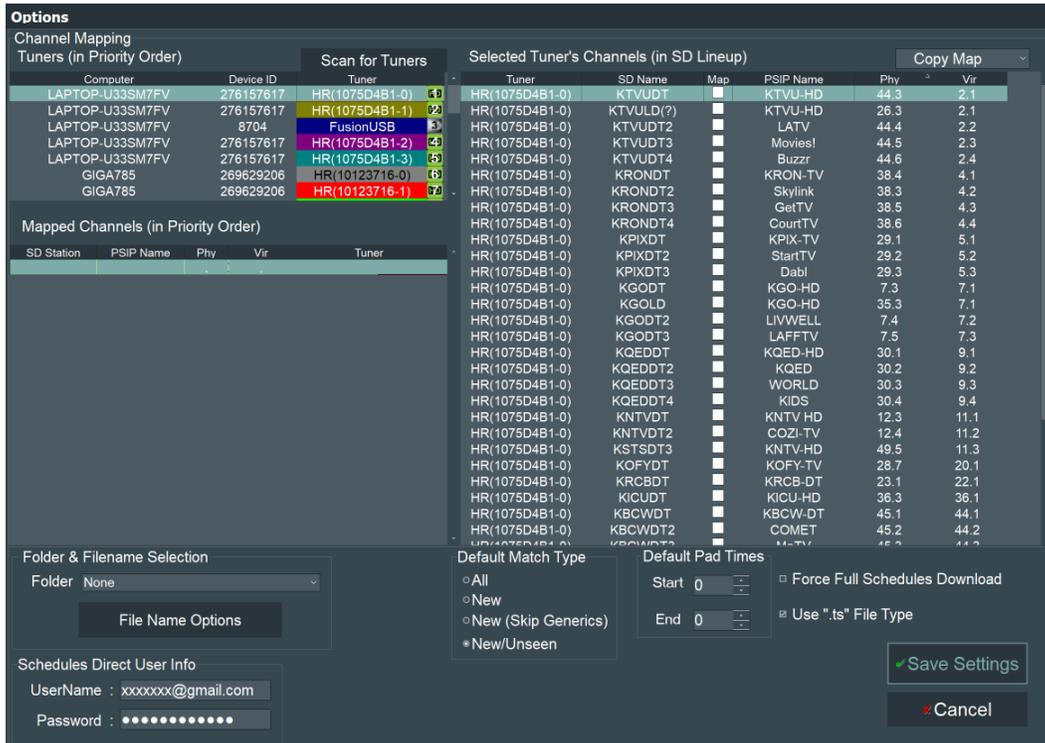
- a) First you need to decide which of your LAN-connected PCs you want to set up as the CW_EPG “Master”. That is the one on which you will interact with CW_EPG to set up the scheduling of all of your recordings. The other PCs are called CW_EPG “Helpers” and are optional. If you only want CW_EPG to control a single PC’s tuners (including any HDHR units) then that PC is the Master and there are no Helpers.
- b) Run the CW_EPG setup executable file on each of the PCs on your LAN where you have installed TV tuners or where you want to capture HDHR recordings. *Choose “Helper” installation mode on all machines except the one that will become the Master.*
- c) After you’ve installed the relevant PC tuner applications and CW_EPG to all the PCs that will be performing captures, make sure that all of them are powered and online, and then on the Master PC select **Cliff Watson EPG Program** in the All Apps menu (All Programs menu on pre-Windows 10 versions) to open the main program.
- d) CW_EPG will find no Schedules Direct user credentials and will open a dialog box asking you to enter them.
- e) CW_EPG will then inform you that no EPG data were found in its local database and ask you if it's OK to download them from Schedules Direct. Select “Yes” and wait for the download to complete. This may take several minutes. *If nothing seems to be happening, make sure that your firewall program is not blocking Internet access.* At this point, CW_EPG will have an updated copy of your Schedules Direct EPG data but it will display nothing in its Listings pane, because you need to match up the HDHR/MyHD/Fusion channels with those in the newly loaded EPG data. So we proceed to the next step.

Tip: See the QuickStart.pdf for detailed illustrations of first-time installation.



3) SELECT CHANNELS TO BE RECORDED

CW_EPG should be displaying a notice that channels have not been mapped yet. Click “Yes” to be taken to the Options window, which will look something like the figure below.



a) On the upper left-hand side of the page you see a list named “Tuners (in Priority Order)” showing all the tuners that CW_EPG has detected on your Master PC, identifying them by host computer, device number, and tuner model. If you click the Scan for Tuners button at the top of that list CW_EPG will ask if you wish to search your LAN for Helper PCs. If you answer “yes” you will be given, after a several second delay, a list of PCs found on your network (Make sure that they’re running) and asked to select one. Then CW_EPG will check for tuners on the selected computer, add their tuners to the list, and ask if you wish to add another Helper. You can sort the tuner list into any order by dragging the entries up or down, cutting&pasting them, or using the right-click context menu. The order in this list determines the number shown on the icon for each tuner and it also can be used to sort the Mapped Channels list into tuner priority.

*Tip: You can move items up/down in the **Mapped Channels and Tuners** lists with cut&paste or a mouse click-drag. The Mapped Channel items may also be quickly sorted in the current Tuners order via the right-click menu.*

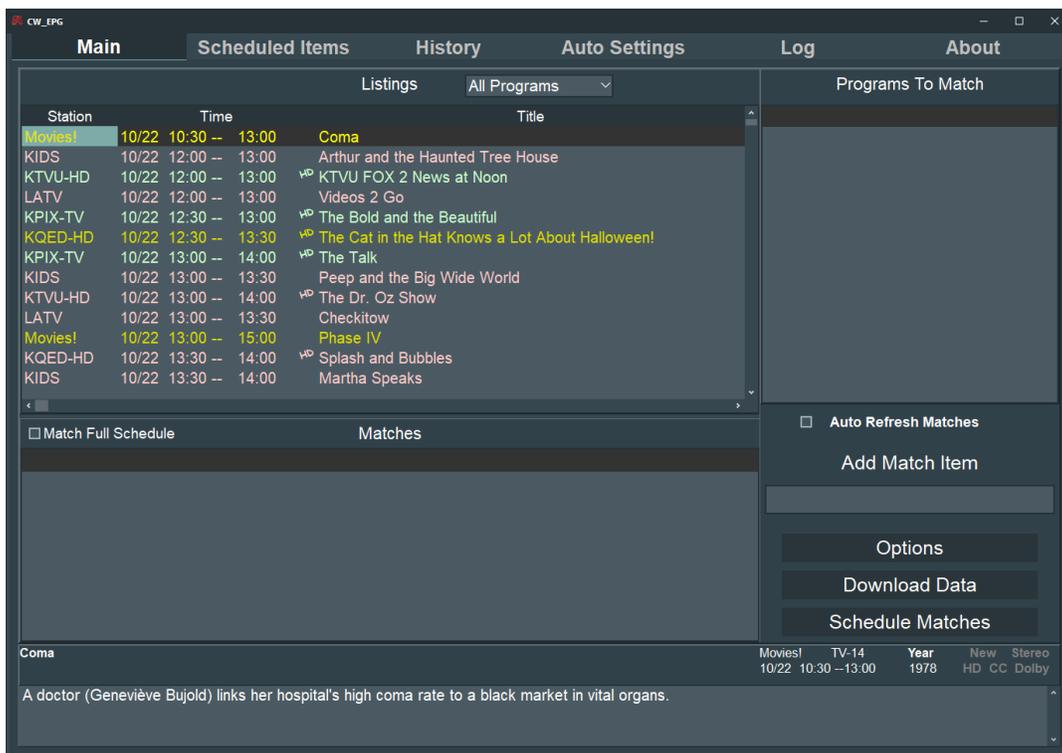


b) As you click on each row in Tuners, the corresponding available channels are displayed in the “Selected Tuner’s Channels” list on the right-hand side of the Options window. By default this list shows only channels that correspond to those in your Schedules Direct lineup but clicking on the list’s title toggles between that view and showing all the channels found on the selected tuner with “n/a” in the SD Name column for those not in the lineup. You also can sort the Tuner Channels list on any of the columns by clicking on its header.

c) For each tuner in turn, indicate the channels from which you want to record by marking its checkbox. This will populate the “Mapped Channels (in Priority Order)” list in the left-hand column of the window. *The Mapped Channels list order is used to prioritize CW_EPG scheduling of your program recordings in case of tuner-use conflicts.*

You must first manually map the channels of at least one tuner and then you can click on the Copy Map button to copy the selected tuner’s mapping to another tuner by selecting from the Copy Map dropdown list. Note that Copy Map does not delete any previously mapped channels from the target tuner.

d) When you've mapped all the channels from which you wish to record on all tuners, click on 'Save Settings' and wait for the Listings pane to populate with data. It should then look something like the following figure.





4) CREATE YOUR 'PROGRAMS TO MATCH' LIST AND SCHEDULE RECORDINGS

The Programs To Match list shows what CW_EPG will be looking for in the Schedules Direct program data of your Mapped Channels. When it finds a match to one of the list items, CW_EPG shows that item in the Matches list if it occurs within the next 26 hours. Then clicking on the Schedule Matches button schedules capture (or watch) of all items in the Matches list, subject to the limitations of available tuners, conflicts with higher-priority matches, and restrictions that you have entered in that item's Options via its right-click menu as described later. There are two methods for populating this list.

***Tip:** At startup CW_EPG sizes its main window to use most of your PC's screen and large fonts. You can resize it using the usual Windows mouse and keyboard conventions. Also, you can make it full screen (or not) by pressing F11. CW_EPG's other windows are not resizable.*

a) *Method 1:* Type the title of a program you want to schedule in the 'Add Match Item' input field and hit enter. The matching of the entry is not case sensitive. However, spelling is critical and must exactly match the title in the Listings pane. Optionally, you may use the wildcard characters "?" and/or "*" as part of a word or phrase you wish to match. The "?" wildcard matches any single character and "*" matches any zero or more characters. Matches will then occur if that word/phrase appears in the title as in your search string. For example, "*news" would match "NBC News", "CBS News", and "Bulging Sinews", but not "ABC News at 11 PM". Also, "* li?e *" (Note *spaces* inside quotes!) would match "One Life to Give" and "Bud Lite Parade" but not "Regis Live!".

You can prefix the search phrase with "+" to search the *program descriptions* and *cast information*, instead of program titles, for matches. For example, "+Evangeline Lilly" would match airings of "Lost" and appearances on talk shows such as "The Tonight Show". The same applies to any phrase within a program's description.

b) *Method 2:* You can double-click entries in the Listings pane or right-click them and select 'Add Match Item' to add their titles directly to the Programs To Match list. Newly added Match Items that are episodic programs or movies receive the user-specified Default Match Type shown on the main Options window. (See [Programs To Match](#) on page 10 for descriptions of match types)

c) Continue adding to the Programs To Match list using Methods 1 and 2. If you add your most important shows first they will be near the top of the list and will 'win' in the event of a schedule conflict. You can also move Match Items up and down in the list to change their priorities by right-clicking and choosing Higher/Lower Priority, by using cut&paste,



or by dragging the entry higher or lower with the mouse. The right-click menu in the Programs To Match list, also lets you delete items or specify that you only want shows that Schedules Direct says are “new” or shows that are “New/Unseen”, i.e., have not been scheduled by CW_EPG for capture in the past. If a schedule item in Listings matches a Programs To Match item *within the next 26 hours* you will see that title under 'Matches'. If the “Match Full Schedule” checkbox is ticked, the Matches list displays all hits within the full 12 days of schedule data.

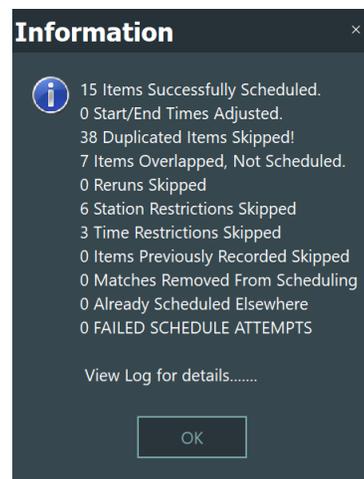
Tip: When Auto Refresh Matches is checked, changes in the Programs To Match list or the Options panel will repopulate the Matches list. So make sure that you have made all changes to those before you block unwanted matches or you'll have to repeat your work!

d) In the Matches list, you may right-click to block scheduling (one time) or (for “New/Unseen” entries) mark as “already seen” any matches that you don't want to schedule.

e) When you're done setting up your matches, click the Schedule Matches button.

f) You can also manually schedule individual programs directly from either the Listings or Matches lists by right-clicking an entry and selecting Schedule Capture or Schedule Watch. There actually are 4 menu choices, covering both capture and watch scheduling with and without padding. The padding options differ between the two lists. From the Listings menu, the applied padding uses the default values from the main Options window. From the Matches menu, the applied “standard” padding uses the values defined in the item's Programs To Match right-click Options window. In all cases, the item is not scheduled if it conflicts with an already-scheduled program. Unlike with automatic scheduling, manually scheduled padding is “all or nothing” and CW_EPG does not adjust it to accommodate scheduling conflicts.

g) After scheduling, CW_EPG displays an information summary window of the schedule-attempt results, as shown at right, and a detailed description is appended to the CW_EPG.log file.



GETTING UPDATED

If you're already running CW_EPG 4.x, you may simply run the 4.4.3 setup executable to install this version over the previous one, repeating that step for any Helpers that you are using. Just make sure to update all PCs prior to running CW_EPG 4.4.3 the first time.



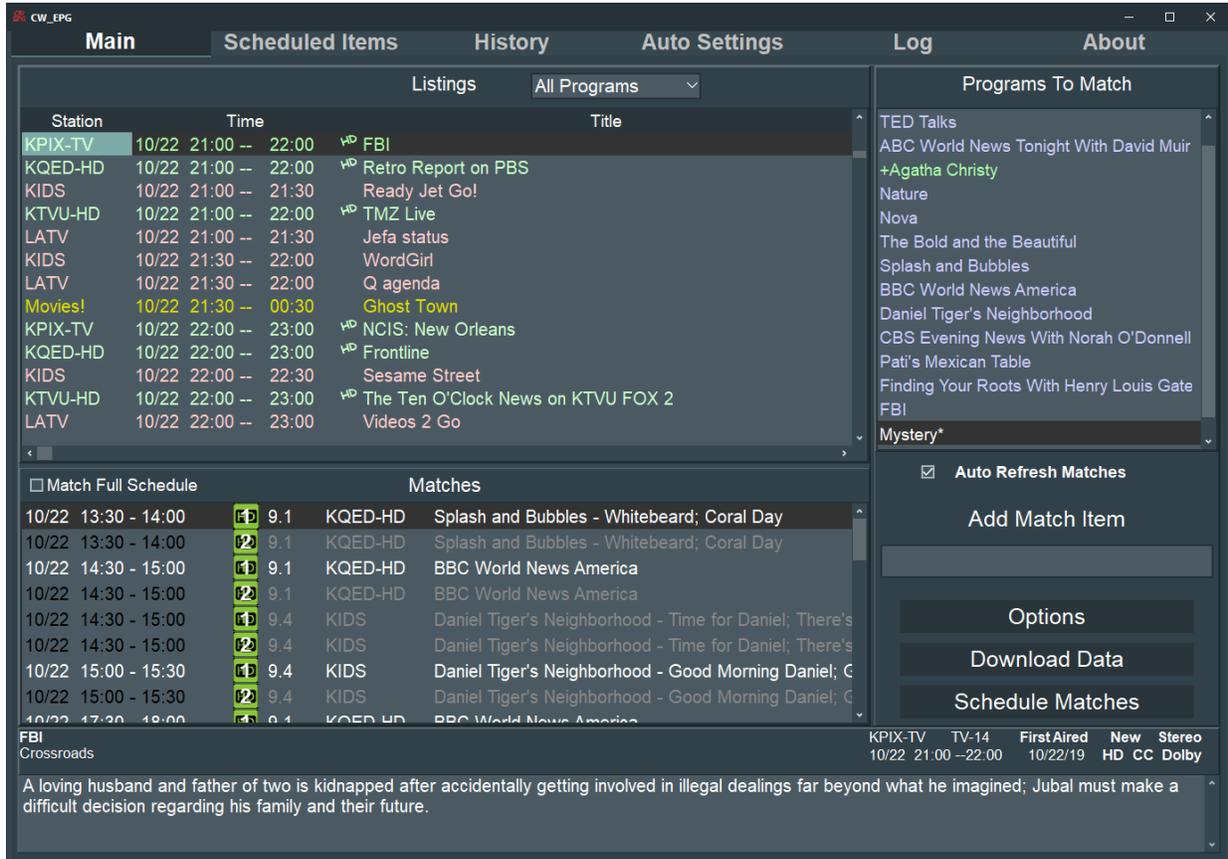
If you have an HDHR-US Extend or Connect and are using it for OTA tuning, please see the note in the Channel Mapping section regarding tuning modes.

If you were running CW_EPG previously on more than one PC and would now like to consolidate its operations to a single PC, run the setup executable on each PC that controls a tuner, but choose Helper installation mode on all but the one on which you want to work with CW_EPG. This will set up your PCs as a group of CW_EPG Helpers with a single CW_EPG Master that performs all scheduling for the group. You then need to add any Programs To Match items from the now-Helper PCs that were not already in the list on the current Master PC. Finally, you need to perform the channel mappings on the Master for the tuners on the Helper PCs. But the new Copy Map button makes this much easier than it used to be!



PROGRAM COMPONENT DETAILS

MAIN TAB COMPONENTS



Tip: When Listings has the focus, typing a string (without a long pause between characters) filters the display to items matching the string

Listings: Shows a list of all mapped Schedules Direct EPG data in the current database from the present time forward. You may filter the list by selecting a genre in the dropdown box located on the Listings title bar.

The Listing right-click menu gives options to instantly schedule a listed item, with or without default padding, for capture or watch (i.e., live viewing) or to add it to the Programs To Match list using the Default Match Status defined on the main Options window. Double-clicking on an entry adds its title to the Programs To Match list.

Tip: Clicking on a column's heading sorts the Listings by that column, and double clicking its title expands it to fill the pane.

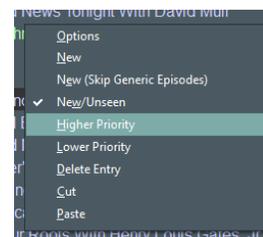


Only matches that occur within the next **26 hours** are scheduled automatically unless the “Match Full Schedule” checkbox is checked. However, there is no time restriction for manual (right-click menu) scheduling.

The color-coded shadings in the Listings pane have the following meanings:

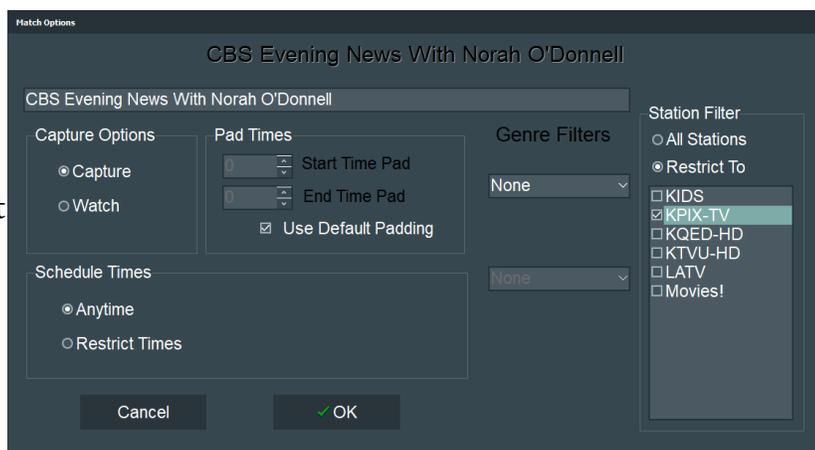
- Green = New Airing
- Pink = Repeat
- Yellow (Maroon in light theme) = Movie

Programs To Match: This is the prioritized list of sought-for matches. A higher-listed item will be scheduled in favor of a lower one in cases of time-tuner conflicts. Right-Clicking on an entry allows you to set its customized Options (see below), change its priority, or mark it as “New” for new-airings only (optionally skipping generic episodes such as daily news shows) or “New/Unseen” for shows not previously recorded, or delete it. You may also cut&paste or drag&drop entries to re-order their priorities. New-airing entries are marked with green highlighting. New/Unseen (which CW_EPG should skip if it has previously recorded them) are flagged with blue highlighting.



Manually added items will match only if they exactly match the program name (aside from upper/lower case) or if their pattern of characters and wildcards fits (See above examples). Manually entered items use the “Default Match Status” selected on the main Options window unless they contain wildcard characters, in which case they are set to match all programs.

Auto Refresh Matches checkbox: When checked (default), any change to the “Programs To Match” list immediately causes reprocessing of the list to reflect the change. Deselecting this option suspends list processing until scheduling occurs or the “Refresh Matches” button is pressed. This allows you to make multiple changes to the “Programs To Match” list without having to wait for the list processing after each.



The Programs To Match right-click Options menu allows you to set the capture mode to either “Watch” (view live) or “Capture” and to set separately the start and stop padding times for each item. To use the same padding as the default setting in the main Options



window, check the “use default padding” box. In addition, you may restrict start times, genres, and stations for which the Match item will be scheduled.

Matches: Shows Listings-pane items within the selected scheduling period that match items in the Programs To Match list. A tuner number is displayed that represents the tuner order as defined in the main Options window. The list shows additional information about the pending schedule: (1) Items in normal white text will be scheduled. (2) Items with greyed-out title text will not be scheduled with the current CW_EPG settings--i.e., they lack channel or program priority, are not new, or were previously recorded. (3) Items with times displayed in red text will not be scheduled because of time-blocking options settings. (4) Items with channels displayed in red text will not schedule because of station-blocking option settings. (5) Green- and pink-text items conflict with one another. The green-text ones will be scheduled.

This description refers to the default dark theme's color scheme. The light theme is similar.

Right-clicking on a Matches list item gives you the options to (1) adjust its start/end padding times, (2) “Mark As Seen” if it's a New/Unseen item to flag it as previously recorded and to be skipped, (3) instantly schedule the listed item for watch or capture, with or without padding, (4) block an item from scheduling one time, or (5) restore items that have been manually or station blocked. Note, however, that the Matches list is refreshed every time there is a change to the Programs To Match list, so to avoid rework make schedule blocks only when all other edits are finished.

By double clicking on the title of either Listings or Matches you can expand that list to the full window height covering up the other list. You also can drag the bar separating the two lists to reapportion them.

Options button: Takes you to the main configuration Options window, described below.

Download Data button: Attempts to download data from Schedules Direct. (Account information must have been already entered in the main Options window) Data within the next 3 days and any data needed to fill the 12 days of schedule data will be downloaded. (After the download, any available MyHD EPG database is also updated)

Schedule Matches button: Sets up the displayed Matches for recording (or watching). On completion, an information window displays summary results of the schedule attempts and a detailed description is added to the Log.

Match Full Schedule checkbox: This is a non-sticky checkbox that allows you to see (and schedule if you wish) all of the matches within the next 12 days. It reverts to its default unticked setting at each new CW_EPG run to allow just-in-time scheduling using the latest data via the daily run set up on the Auto Settings tab.



SCHEDULED ITEMS TAB COMPONENTS

Computer	Tuner	Date	Start	End	Channel	Title
WIN-AM4K2MBD1AP	HR(1075D4B1-0)	10/22	17:30	18:00	9.1	BBC World News America
WIN-AM4K2MBD1AP	HR(1075D4B1-0)	10/22	18:30	19:00	5.1	CBS Evening News With Norah O'Donnell
WIN-AM4K2MBD1AP	HR(1075D4B1-0)	10/22	19:00	19:30	9.1	Pati's Mexican Table
WIN-AM4K2MBD1AP	HR(1075D4B1-0)	10/22	20:00	21:00	9.1	Finding Your Roots With Henry Louis Gates, Jr.
WIN-AM4K2MBD1AP	HR(1075D4B1-0)	10/22	21:00	22:00	5.1	FBI
WIN-AM4K2MBD1AP	HR(1075D4B1-0)	10/22	22:30	23:00	9.4	Daniel Tiger's Neighborhood
WIN-AM4K2MBD1AP	HR(1075D4B1-0)	10/22	23:00	23:30	9.4	Daniel Tiger's Neighborhood
WIN-AM4K2MBD1AP	HR(1075D4B1-0)	10/23	10:00	10:30	9.1	Daniel Tiger's Neighborhood
WIN-AM4K2MBD1AP	HR(1075D4B1-1)	10/23	12:30	13:00	5.1	The Bold and the Beautiful
WIN-AM4K2MBD1AP	HR(1075D4B1-0)	10/23	13:30	14:00	9.1	Splash and Bubbles
WIN-AM4K2MBD1AP	HR(1075D4B1-1)	10/23	14:30	15:00	9.4	Daniel Tiger's Neighborhood
WIN-AM4K2MBD1AP	HR(1075D4B1-0)	10/23	14:30	15:00	9.1	BBC World News America
WIN-AM4K2MBD1AP	HR(1075D4B1-0)	10/23	15:00	15:30	9.4	Daniel Tiger's Neighborhood
WIN-AM4K2MBD1AP	HR(1075D4B1-0)	10/23	17:30	18:00	9.1	BBC World News America

Clear ALL Schedules

Scheduled Captures: Shows all captures that are currently scheduled to record or watch (from all sources) in schedule order, optionally sorted by tuner. Right-Click gives you the option to delete individual entries. Additional scheduling information in a pop-up bubble is available by hovering the mouse over an entry.

Pink text = Watches

Dark Green text Date = Recurring scheduled capture (Fusion/MyHD only, setup in vendor's app)

Clear ALL Schedules: ****WARNING**** This does exactly what it says! It wipes out all non-recurring scheduled captures on all tuners including captures scheduled via MyHD, FusionHDTV, or TitanTV. Recurring captures may be deleted on their right-click menu by selecting Delete. This action deletes the recurring capture scheduled from within MyHD or FusionHDTV, and therefore will remove all scheduled entries that are listed for that particular recurring scheduled capture.



HISTORY TAB COMPONENTS

Displays database of CW_EPG's previously scheduled programs. The button near the bottom of the page allows deletion from the database of individual and multiple entries (selected in the usual Windows control-click or shift-click fashions). Note: Entries cannot be edited, only deleted. Once deleted, the program may again appear in Matches, even with "New/Unseen" Match status. Clicking the column title will perform a sort on that column and hovering the mouse over an entry pops up a window with full information from the database.

AUTO SETTINGS TAB COMPONENTS

EMAIL OPTIONS

SMTP Mail Host. This is the SMTP server at your ISP or another convenient host, such as smtp.gmail.com, where you have an email account.

Username and **Password** are the credentials needed to log onto the SMTP server.

From Address is the address from which the emails CW_EPG sends will appear to come.

Email Recipients contains the semicolon-separated list of addressees for CW_EPG alerts.



Delivery Options specifies when CW_EPG is to send alerts. The levels are each a superset of the preceding one, from Never to After Every Scheduling.

Content specifies which data are to be included in each email.

Port is the port number used by the SMTP server. (This is often 25 for non-secure connections, but the correct value can be found in your current email client or from the ISP's help info) *SSL Connection* must be checked for some SMTP servers and some require the *TLS Connection* option. When you choose these options, CW_EPG automatically supplies the most-common Port number, but you may need to consult your ISP's documentation and provide a different number or an app-specific password if the emails don't succeed.

Test Settings button attempts to send a test email using the current settings and reports in a pop-up whether the test succeeded or failed. Note that some email servers (e.g., Gmail) require OAuth 2.0 authorization to log in, but CW_EPG cannot provide that. If you can't find a combination of security type and port that succeeds with the *Test Settings* button, you'll have to generate an app-specific password from your server.

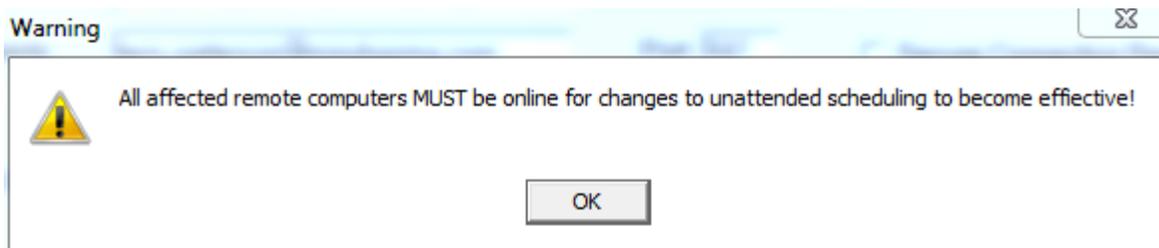
UNATTENDED RUN OPTIONS

Start Automatic Run is when the daily automatic-scheduling run is to be made.

Max Minutes to Run is a timeout value for the automatic run. This should normally be set to 5 minutes or less unless you have a very slow Internet connection.

Runtime Options are the actions that will be performed during each automatic run. Normally you should have both Download Schedule Data and Schedule Captures checked. Clear Log Entries is up to your personal preference.

WARNING NOTICE



If there are Helper tuners defined you will see this warning when you enter the Automatic Settings tab to remind you that all the Helpers that you want to have participating in the daily automatic scheduling must be awake to receive updated scheduling instructions. If



you plan to change the Maximum or Run Time and any of those Helpers are offline, you must manually wake them up and then close and restart CW_EPG before proceeding.

LOG TAB COMPONENTS

Displays various log entries, including scheduling information, errors, etc.

Clear Log: Erases all log entries *permanently*.

ABOUT TAB COMPONENTS

Displays version numbers of main app and CWHelper as well as information about the CW_EPG Team and origins.

Toggle Dark/Windows Themes: Switches the display mode between the default dark theme and the previous version's light (standard Windows) theme.

OPTIONS SCREEN COMPONENTS

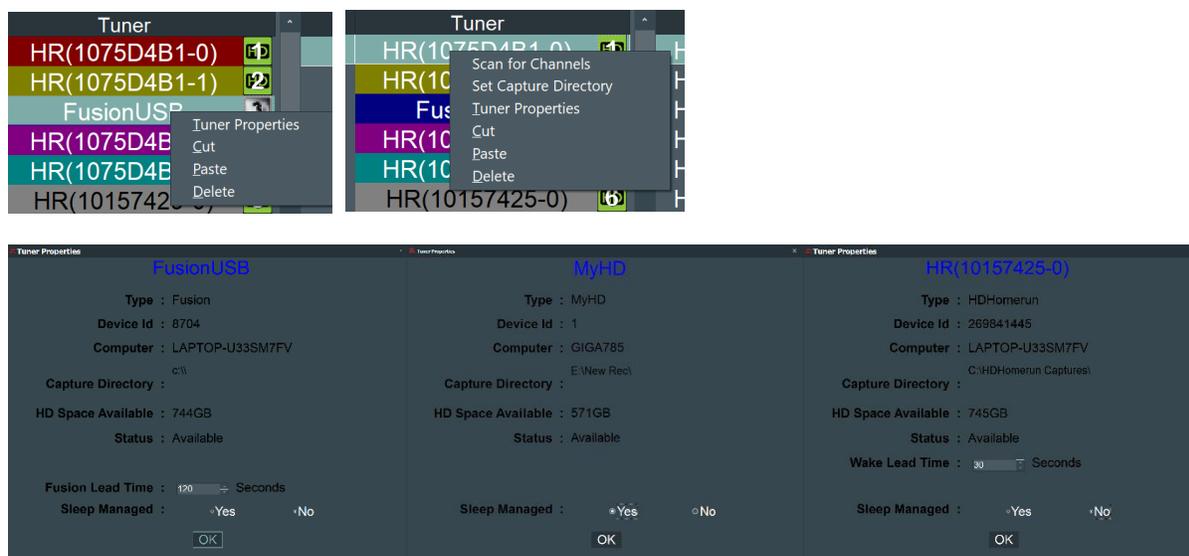
The screenshot shows the 'Options' screen with several sections:

- Channel Mapping:** A table with columns for Computer, Device ID, and Tuner. It lists various devices and their associated tuners.
- Scan for Tuners:** A section with a 'Scan for Tuners' button and a list of detected tuners.
- Selected Tuner's Channels (in SD Lineup):** A table with columns for Tuner, SD Name, Map, PSIP Name, Phy, and Vir. It lists channels like KTVU, KRON, and KQED.
- Mapped Channels (in Priority Order):** A table with columns for SD Station, PSIP Name, Phy, Vir, and Tuner. It lists mapped channels like KPJK, KTVU, and KRON.
- Folder & Filename Selection:** Includes a 'Folder' dropdown (set to 'None') and a 'File Name Options' button.
- Schedules Direct User Info:** Includes fields for 'UserName' (xxxxxxx@gmail.com) and 'Password' (masked).
- Default Match Type:** Radio buttons for 'All', 'New', 'New (Skip Generics)', and '*New/Unseen'.
- Default Pad Times:** Input fields for 'Start' (0) and 'End' (0).
- Other Settings:** Checkboxes for 'Force Full Schedules Download' and 'Use ".ts" File Type'.
- Buttons:** 'Save Settings' and 'Cancel' buttons.



CHANNEL MAPPING

Tuners: A list of all tuners ever discovered on all LAN-connected PCs that are running CW_EPG either as Master or Helper. Only the Master is automatically scanned for tuners and you must click on the Scan for Tuners button to search your LAN for powered-on Helpers and their tuners. The currently selected tuner is highlighted with a cursor and tuners that are not currently online are displayed in greyed-out text. Right clicking on any of the tuner items provides a tuner-specific menu for deleting tuners that will no longer be present and setting tuner properties, such as the wake-up lead time required for captures, as shown in the below example figures. The tuners are displayed in priority order and their position in the list can be changed by drag&drop or cut&paste.



HDHR tuner menus include *Scan for Channels*, which provides an alternative to the Silicondund HDHomerun_setup utility's scan, and *Set Tuning Mode* (for ATSC only), which toggles new HDHR tuners between VC-only and RF.PID modes. If both types of channel scan have been done, CW_EPG will use the newer scan's data. Note that *Scan for Channels* maintains a separate lineup for each tuner, unlike the Silicondund version that is global to an antenna.

Set Capture Directory defines the base folder for all captures on that tuner.

The *Tuner Properties* input fields are *Fusion Lead Time*, *Wake Lead Time*, and *Sleep Managed*. The other fields are informational only. *Fusion Lead Time* is the time allowed for FusionHDTV to discover a new request to start an immediate recording. If this is set too short the capture request may not be effective because FusionHDTV only checks the request list periodically and it ignores recordings in the "past". The default two minutes is a safe value. *Wake Lead Time* is the number of seconds allowed for HDHR tuners to



become active from a sleep state for either recordings or CW_EPG interactions. The default value of 90 seconds is adequate for normal connections, but up to 150 seconds may be needed for configurations where the HDHR is using its Auto IP address (i.e., where there is no DHCP server involved). *Sleep Managed* is a legacy setting available in case the HDHR recording utility fails to keep its recording PC awake. This can usually be left in the “no” position.

Tuner Channels: A list of all channel and input information for the currently selected tuner. By default, this list shows only channels included in your Schedules Direct lineup but clicking on its title toggles it to show all of the current tuner’s channels. Note that the “Vir” column shows the VC (Guide number for cable channels) while the “Phy” column shows the RF.PID except for newer HDHR tuners when using VC-only tuning. See the next paragraph to change this default behavior in ATSC tuning if desired. This list is initially populated from the previous CW_EPG run, if any. Therefore, if changes have occurred you need to click on Scan for Tuners to refresh the list.

Users of US models of HDHR Connect and Extend models have the option in ATSC OTA tuning of seeing both VC and physical (RF.PID) channel numbers. VC only is the default mode for these tuners, since it seems preferred by Silicondust. However, in market areas where some VC numbers are duplicated it may be desired to use the RF.PID numbers so that duplicated VC designations may be accessed. Switching from the default mode to RF.PID in this case is accomplished via the Tuners right-click menu item Set Tuning Mode (visible only if applicable) with the following steps:

1. Delete any scheduled captures on the Connect/Extend tuner(s).
2. Select Set Tuning Mode from the Options>>Tuners right-click menu and follow the on-screen prompts. The process is automatically completed on a Master PC, but if you have Helpers they need to be restarted when the prompt appears for you to do so.
3. Select Save Settings and then reschedule the deleted captures.

If you desire to return to the default VC-only mode, repeat the above steps.

Mapped Channels: List of channels that have been mapped for scheduling via checking their boxes in the Tuner’s Channels list. Green background indicates that scheduling can occur for that channel. Red background indicates that the mapped channel has no match in the current SD lineup and needs attention. (White background indicates that the channel is “EPG only”; i.e., mapped *only* for display in the MyHD EPG OSD table) You may click&drag or cut&paste channels in this list to set their desired priority for scheduling. Right-clicking also provides menu options for rearranging the channel priority, auto



sorting them into the current Tuners order, and (if MyHD is installed) marking MyHD channels “EPG Only”.

Copy Map: Press this button and select from its dropdown list to add all mappings from the current Tuner Channels to another tuner. Note that this *adds* the current tuner’s channels to the target tuner and does not delete any that were previously mapped.

FOLDER & FILENAME SELECTION

Select the Folder and Filename naming conventions. (Note that the Folder setting is not used for Fusion captures and must be set within FusionHDTV.)

SCHEDULES DIRECT USER INFO

Username and password for retrieving guide data from Schedules Direct

DEFAULT PAD TIMES

The “Start/End Pad Time” spinners set the default paddings that are added to the beginning and end of all noncontiguous captures. This global value can be overridden by entering values in the context (Right-Click) menus in the Programs To Match and Matches lists.

DEFAULT MATCH TYPE

The 4 options here specify the default type for new Programs To Match items entered via the Listings pane on the Main tab. The options have the following meanings:

- All — Capture all matches, regardless of rerun status or previous captures
- New — Capture only matches that Schedules Direct shows as new airings
- New (Skip Generics) — Capture all new episodes that have unique ID numbers
- New/Unseen— Capture only programs that have not been previously recorded

USE “TS” FILETYPE

The filename extension is “.tp” when the checkbox is cleared. Checking the box makes it “.ts”.



FORCE FULL SCHEDULES DOWNLOAD

Checking this box and then clicking the Save Setting button will close the Options window and download a new complete current listing for all of your subscribed Schedules Direct channels. (The checkbox is then cleared automatically after this one-time download)

HDHR CAPTURE MANAGER

To support captures via HDHR tuners, CW_EPG uses the HDHR utility program HDHomerun_config.exe that is included in the [Silicondust Software for Windows](#) package (Not their “HDHomerun App for Windows 10”). No other Silicondust software is required for CW_EPG to perform captures on HDHR tuners.

CW_EPG’s recording function on HDHR results in the usual “.tp” (or “.ts”) file containing the null-stripped subchannel-only program of interest. The “watch” function makes sure that the PC is awake and then it launches [VLC](#) (if installed) in a new window with the HDHR tuner set to the scheduled program. For most purposes it's probably better just to schedule a recording and then use [VLC](#) or a media streamer such as TViX or a LAN-connected DVD player to play the in-progress file, giving you the ability to pause and replay in the usual PVR style.

Whenever an HDHR capture or watch is in progress, the Capture Manager places an icon in the system tray to alert you to the activity and allow you to easily extend it or terminate it if you wish. Just right click on the icon and select “extend 10 minutes”, “stop recording” or “stop watching,” as appropriate.

The Capture Manager (CWHelper) displays a system tray icon with a right-click menu. The menu options are Capture Editor, Open Configuration Page, and Shutdown. Capture Editor opens a browser page with a VCR-like menu for adding new captures/watches as well as deleting and editing existing captures/watches. The Configuration Page displays many of CWHelper’s optional configuration settings and allows them to be edited. The Shutdown page warns of pending captures that may be affected by shutting down CWHelper and allows confirmation of a shutdown.

TROUBLESHOOTING

1. WHY DON'T THE TUNERS ON MY HELPER PC SHOW UP IN CW_EPG'S LIST?

Make sure that you have a non-blank password assigned to the user account that is logged in on your Master PC. Sometimes it takes a while for Windows peer-to-peer networking to discover new (or newly configured) LAN resources. Try leaving everything powered on



for an hour and then re-run CW_EPG to see if that resolves the problem. Also, although CW_EPG does not use Windows file sharing, Windows' implementation of TCP/IP communications does require you to have the Windows File Sharing service enabled on all involved PCs. Furthermore, it seems to aid resource discovery to have at least one folder set to "shared" on each PC. If your Helper PC is not showing up in Windows File Explorer, CW_EPG won't be able to find it either. See [this article](#) for tips on solving this problem.

2. THE EVENTS IN THE LISTINGS PANE OF THE MAIN TAB ARE INCOMPLETE OR SHOW DUPLICATED ITEMS.

This is likely caused by corruption of the CW_EPG program database downloaded from Schedules Direct. To fix this problem, click the Options button and check the "Force Full Schedules Download" box. Then click Save Settings, which closes the Options window and downloads a fresh Schedules Direct data set. Following the download the checkbox is cleared automatically.

3. NO EVENTS ARE SCHEDULED TO MY HELPER PC AND ITS TUNERS ARE GREYED OUT IN THE EMAILED REPORT OF THE AUTOMATIC DAILY RUN.

This is likely because the Helper is not waking up for the automatic daily scheduling run. *Note that the Master PC does not wake Helper PCs.* The Helpers wake themselves based on the schedule sent from the Master when you define the automatic run. Therefore, you must ensure that all Helper PCs are awake to receive the scheduling information when you define it or they won't wake up for the daily scheduling run.

KNOWN ISSUES

1. On some computers, the Options window Mapped Channels and Tuners lists' scroll bars do not work correctly in the dark theme.
2. To fully effect a change in channel lineups you may need to restart CWHelper. This happens when the PC is restarted, but may also be accomplished using the CWHelper's tray-icon right-click Shutdown menu item and then running CW_EPG to start CWHelper again.
3. Some cable systems (still!) do not provide VC or "guide number" indications in their channel feeds. Unfortunately, these systems are incompatible with CW_EPG 4.4's channel mapping. If you find yourself on such a system you won't see any mapping checkboxes and you won't be able to schedule captures. In this case, you can revert to CW_EPG 4.3.1 and use its more rudimentary mapping scheme, but you'll have to work out the channel lineup by trial and error.



VERSION HISTORY

Ver. #	Enhancement or Bug Fix
4.4.3	Enabled resizable and full-screen Main window Fixed miscellaneous bugs
4.4.2	Fixed DST transition-day schedule bug Improved automatic handling of OTA repack lineup changes
4.4.1	Added cut&paste function to editable lists Added Test Settings button to Auto Settings tab Fixed issue with old firmware on certain HDHR models Added automatic tuner-channel updates after Scan for Channels action Added compatibility with 5:4 screen formats Increased font sizes of hints and popup menus Fixed New Year's Eve date bug introduced in 4.4.0
4.4.0	Added dark theme with option to use light (Windows) theme Simplified channel mapping Speeded up several app processes Added support for newer HDHR tuners' VC-only tuning mode Added CWHelper system tray icon with right-click options to access Capture Editor, Configuration Page, and safe Shutdown Improved FusionHDTV scheduling reliability Added hover-hint information to Programs To Match, Scheduled Items, and History Various bug fixes (e.g., handle non-ASCII characters in filenames) Compact schedules and history database files on each non-Auto run Added 3 new filename options: movie date, first-aired date, and episode number Added resizing of Listings/Matches split via title double click and separator mouse drag Enlarged app display window and made it scale for 720, 1080, and 2160 screen heights
4.3.1	Added option of .ts filename extension Added notice regarding S.D. data download status to log and status emails Fixed startup delay in Windows 10 Anniversary Update Prevented unattended Helper PCs from sleeping during daily update runs
4.3.0	Support Windows 8.x and 10, as well as Java 8 Allows TLS email connections Improved support for NAS-based captures
4.2.1	Accesses the new Schedules Direct EPG database
4.1.0	Helper OSD EPG database (cw_epg.mdb) updated Timeout on stalled Schedules Direct downloads Don't check for channels on offline PCs Episode number added to mouse-over hint on the Matches pane



Ver. #	Enhancement or Bug Fix
	Fixed mapped channel delete cosmetic bug where grid would shift
	Clear All Schedules should remove all from History database
	Check only servers that have mapped channels defined on program start
	Fixed that M*A*S*H would not properly schedule
	Fixed error when dragging to end of Programs To Match list
	Rework Schedules Direct data update to eliminate dupes that were being created
	Added multiselection for deletion on History tab
	Highlighted History item survives sorting
	Do not show success message after a failed scheduling attempt
	New DevID format in capture file names
4.0.1	Address Schedules Direct Internet connection issue
	Improved speed of opening Main tab Options window
4.0.0	Fixed bug where odd start or stop times would cause bad scheduling
	Changed "New To Me" to "New/Unseen", added category "New (Skip Generics)"
	New matches now schedule all "new" episodes regardless of history database
	Added Genre Filters to the Match Options dialog
	Better record matching and control of deletes in the History database
	Common file naming
	Show warning at startup if FusionHDTV app is running
	Now use <commonapp>\CW_EPG folder for all application data—existing files are moved during an update install
	CW-EPG always starts CWHelper if it isn't running
	Track model name and DeviceId changes to defined Fusion tuners
	Tuners color-coded on Options window, Inactive tuners greyed out
	Add tuner info popup to Options window with editable properties, HD Space Available
	Set default HDHomerun capture directory to "<localdrive>:\HDHomerun Captures\"
	MyHD Pass Items handled from Helpers during CW_EPG runs
	Daily automatic wakeup event now scheduled internally
	Emailer added to send schedule alerts
	Add Force New Download on Options window to fix database corruption issue
3.0.2	Fix for occasionally dup scheduling
	Options page hints corrected
	No Longer need 120dpi switch
	Fix for selecting "EPG Only" MyHD mappings would remove from listings, even if station defined on other tuner
	Rework Scheduling logic for more optimized scheduling with padding
	Fix "Block Scheduling" did not delete the actual scheduled capture for HDHomerun tuners
	Fix bug for Manual scheduled captures in multi Fusion tuners
	Cosmetic fix for HDHomerun filename display
	Fix for History entries not being removed correctly in HDHomerun only configuration



Ver. #	Enhancement or Bug Fix
	Option to "Sort By Tuner" on scheduled captures page Added HDHomerun tuner info to log capture entries
3.0.1	Recode scheduling logic for optimizing padded captures Added Listings filter by genre
	Fix for incorrect information displayed in program information pane after certain refreshes Default Match Items Status added to Options page
	Fusion back-to-back bug correction fix
3.0.0	Added support for HDHR units Added installation wizard for proper install/uninstall functions Added "First Air" date to description pane SD Station ID shaded if mapped to selected tuner Rollover info on "Scheduled Captures" page now shows info for shows in progress Fix for MyHD where dup stations could not be mapped Rename files if a duplicate filename would have been created Alternate tuners used if available to preserve padding! Option to add files to MyHD playlist.
2.3.0	Added options to manually schedule capture/watch with or without padding Overcome Fusions lack of ability to schedule same program to different tuners occurring at the same time Fix bug that allowed multiple same channel assignments to Fusion Tuners MyHD filenames added to ALL mouseover information display Tweaked recurring schedule display code for better reliability Changed scheduled highlighting in Matches list to 2 shades of Dark Green (non-recurring & recurring) Changed movie highlighting in Listings list to Maroon Fix incorrect mouseover schedule information Change warning dialog box when deleting recurring scheduled programs Dark Green Date shading on Scheduled Captures page for recurring scheduled programs
2.2.1.13	Force current computer name as tuner server name Correct bug where Options screen would not open for new installs
2.2.1.10	Cosmetic fix only for space at bottom of Listings pane
2.2.1.9	New Only status now has "New To Me" processing to avoid rescheduling events marked as new, but already captured Fusion analog recordings have appropriate filename extension in the history database Checkbox option to match full schedule data Date/Time highlights yellow if full schedule Scheduled captures page font size increased Full capture information now displayed as hint rollover Auto select in channel mappings Change "Zap station" label on Options page to "SD station"



Ver. #	Enhancement or Bug Fix
	Multi Fusion fix adjustable seconds via registry
	After app is run once, there should be a "MultiFusionSeconds" registry key appear the CW_EPG branch that defaults to 30 (seconds)
	User may manually edit that registry key to any value
	Do NOT delete recurring scheduled caps with "Clear All Schedules"
	Apply Fusion back-to-back fix ONLY if back-to-back capture events exist
	"Scheduled" label would appear when using type ahead – fixed
	Catch New SD Channels - if user adds new channel in SD, full D/I occurs
	Remove daily DL limit
	Station Filtering added match options
	Handle Recurring Capture Schedules
	Fix date sort end of year
	Change in capture directory in MyHD will be caught in CW_EPG
	Fix Fusion bug, where overlapping captures could sometimes be scheduled on the same Fusion tuner using manual capture methods
	Lite Purple shading for movies in "Listings" pane
	Changed shading for scheduled items in the "Matches" pane
	Title & Date & Sub Title filename option added
	Title & Date & Time & Sub Title filename option added
2.2.0.3	Change URLs for new Schedules Direct service
	Change episode numbers to 14 chars
	Adjust cw_record.mdb for new episode #s
	Remove year from listings display
	Change History date format to mm/dd/yy
	Fusion version check
	Add User-Agent
2.1.2.4	Optimized processing speed of Zap2It! data
	Fixed bug on certain systems when IP address could not be read.
2.1.0.0	Removed servers search that seemed to be slowing down opening "Options"
	Display different tuners in matches - Number displayed corresponds to t
	Removed blank matches hint when no entries
	Width of hints shortened
	Scheduled items no longer reappear in matches if not using "Title" for
	Manual captures and Analog Fusion captures not properly added to history
	Corrected he multi-Fusion matches duplicating
	More file naming options added
	Warning if Fusion is running and scheduling is attempted
	OTA Fusion analogs now properly displayed
	Screen Center for all forms
	Changes to "cast Processing" on Options page no longer requires restart



Ver. #	Enhancement or Bug Fix
	Fusion digital channels no longer displayed as analog listings
2.0.0.0	Multiple Fusion Tuner support
	Actor/Subtitle search
	Program opens at screen center instead of desktop center
	Right-click delete of scheduled items should remove from History now
	Removed Conflict Checking option. It is now mandatory
	Added hints when over items in the Matches list.
	Added ability to "Block" an entry in the Matches list from scheduling
	Now create all file/ folder names for both MyHD & Fusion
	MyHD/Fusion filenames now added to the History database
	Progress bar added during searches
	Removed the sub-title with title option checkbox on Options page
	120dpi bug fixed Where Options page kept shrinking
	Sort by columns on the MyHD & Fusion channel entries when mapping
	Scheduled items info displayed in Matches list (If it appears in the hi
	Schedule captures/watches from the Matches list
	Sub-titles added to the Matches list. This is always on and no user opt
	Changed station selections from a drop-down box to a list box
	No Dialogs to "OK" if in Auto mode
	When scheduling in-progress program, adjusted start time checked agains
1.1.0.0	Added asymmetric default padding and increased maximum padding value to
	Fixed bug that incorrectly permitted re-recording of some programs
	Added information to display of scheduled items in Matches list
1.0.0.0	Initial release
0.9.4.18	Added display of potentially missed shows to Matches list
	Added option to extensively check validity of displayed matches
	Cursor no longer hidden on History page if shaded
	Case sensitivity removed from the wildcard search
	Mouse wheel works properly
	Cursoring bug in the Programs To Match list fixed
	Direct view of the schedule database. No need for reprocessing
	All downloaded days of schedules displayed
	Fixed cursor movement in Programs To Match & Mapped Channel lists
	Rewrite cw_epg.mdb ONLY if channels were added or deleted
	Channel Priority fixed
	CW_Mon.exe added
	MyHD "Pass" scheduled captures converted to CW_EPG Match items
	"MyHD-Entered Match Items" added to "Options" page
	No longer display "-1" appended to channel in Matches list



Ver. #	Enhancement or Bug Fix
	Programs' year originally aired added to both CW_EPG and MyHD OSD
	Increased functionality of jump-to-keystrokes in Listings
	Renamed some labels to eliminate doubled meaning of "watch"
	Added hints on the "Options" page
	Different look for the show description panel
	Version check added to force database refresh
	Added a warning about deleting schedule database for new version!
	Disabled all buttons while download in progress
	Added new filename options: Title&Date and Title&Date&Time
	User selectable number of days to display in the MyHD OSD Guide
	Zap2it expire data saved and warning displayed at startup if less than
	Zap2it expiration warnings placed in the cw_epg.log file.
	Added option to process cast information to databases.
0.9.3.15	Minor Bug fix
0.9.3.14	Reschedule "New To Me" HD fix
	Adjusted color shading on "Schedules" & "History" pages
0.9.3.13	Double scheduling bug fix
0.9.3.12	Internet Check program hang corrected
	Reschedule "New To Me" HD programs if the original was SD
0.9.3.11	Watch list bug fixed
	Padding to default if not entered
	Scheduled programs not displayed in Match List
	Page switching disabled until EPG is fully loaded
0.9.3.10	History Sorting
	Schedule capture conflict checks for "Matches"
0.9.3.9	Channel priority bug fix
0.9.3.8	Channel priority added
	"EPG Only" added to channel mapping right-click options
	Increased internet check timeout to 30 seconds
0.9.3.7	Bug fix for missing schedule data
	Progress bars added for data parsing
0.9.3.6	Time Blocking Added
	"Mark As Seen" added to Matches list menu
	Color coding added to Scheduled Captures page to indicate Capture or Wa
	Re-worked "New To Me" code to ignore program types with generic episode
	Removed "Post EPG" button and combined its functionality with the "Down
	Added "History" page to allow review and deletion of items from cw_reco
0.9.3.5	Padding functionality added to Options and Watch list right-click menus
	Watch-list options added to set padding and capture mode



Ver. #	Enhancement or Bug Fix
	Reworked XTVD data handling and increased download range to 13 days
	Added support for Internet Explorer proxy settings
	New replacement MyHD with 3-hour and 1-day EPG OSD paging by FF/REW and
0.9.2.5	“New To Me” Bug Fix
0.9.2.4	“New To Me” functionality added
	Removed MyHD analog from MyHD Channel list so no mapping can occur
	Sorted “Scheduled Captures” & “Matches” List on Date/Time
	Added “-nocap” command line option to skip capture scheduling in auto m
	Added show length to descriptions
	Add check for internet connection
	Fixed mouse selecting wrong cell when large fonts were used
	Add warning box when zap2it account is within a week of expiring
	Capturing shows already in progress will schedule 2 minutes from presen
	Added Padding values to “Options” page (but function not implemented).
	Replacement MyHD.exe that corrects incorrect tuning when changing input
0.9.1.1	Fixed bug where not all 10 day EPG entries were being written
	Fixed Access Violation Error when using 640 X 480 Mode
	Added command line switch “120dpi” to adjust for 120 DPI resolution scr
0.9.0.0	Initial beta release