



Avoiding Service Interruption Music Choice and CherryPickers Motorola / General Instrument / Digicipher Specific

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Introduction

This document details how to avoid service interruption while using Music Choice with a Terayon CherryPicker. It is assumed that you have already upgraded your CherryPickers to support Music Choice Interactivity (video still frame) and are running CherryPicker Desktop Software 2.0.2.c or higher.

If you are not running the correct software version, refer to:

- Upgrading Terayon CherryPickers to Support Music Choice Interactivity (Motorola specific) [Document No. 9600155]
- Upgrading Terayon CherryPickers to Support Music Choice Interactivity (Scientific-Atlanta specific) [Document No. 9600156]

Although you may be currently broadcasting Music Choice services without incident, there are several precautions you should take to increase your odds of having minimal impact to services during an incident and to reduce the length of an outage if it should occur.

This process applies to the following products: CP1000 (Stream Router and VBR ReMux), CP7000, CP600, CP500, CP National Control, and CP Ad Splicer.

Step 1: Build a Better PMT Table

The PMT table in the CherryPicker Configuration file is used to define the characteristics of the output multiplex stream leaving the CherryPicker. Some of these values may also be generated by the CherryPicker database file. A conflict can result in a service interruption. To avoid a conflict, we recommend making modifications to the PMT table defined in the CherryPicker Configuration file.

Backup the Existing Configuration file

1. From the CP Controller, log in to the CherryPicker Desktop application.
 2. Go to the Configuration menu.
 3. On your left, expand the configuration tree to display Output 1.
 4. Expand Output 1 and highlight the associated Mux.
 5. To the right, you will see the name of the Configuration file currently being used for this output multiplex. Write the file name here: _____
 6. From the Windows desktop, select Start> Programs> Windows NT Explorer.
-

7. Browse to C:\cherrypicker\config\ and look for the Configuration file you defined in step 5.
8. Save a backup of the Configuration file for historical records.

Determine Number of Required Placeholders

In order for the CherryPicker to recognize and process still frame video properly, it is imperative that the Configuration file have a standard video placeholder PMT set up for every available stream processor in your CherryPicker hardware configuration.

9. From the CherryPicker Desktop window, select the CherryPicker Device (CPD). The number of available stream processor ASICs will be identified in the Maximum Output Avail box.
 - CP 500 - 12 PMT placeholders must be specified
 - CP 7000 - 18 PMT placeholders must be specified
 - CP 1000 - up to 24 PMT placeholders must be specified

Insert PMT Placeholders

Once you have determined how many PMT placeholders are required, cut the necessary number of lines from the sample below and paste them above the existing PMTs in your Configuration file. You may notice that these PMT lines include more PIDs than most. Replace your existing PMT placeholders setup for every available stream processor with the values below. The MPEG numbers (101-124, 5-61) may be modified as needed.

***** IMPORTANT ***** READ THIS PART *****

Make sure you use the same MPEG numbers used in your live system. Failure to do so will require your network administrator to modify your channel map. In addition, failure to use the same MPEG numbers can result in services being mapped to the wrong channels on your set-top boxes.

```
# The following 12, 18, or 24 programs are the PMT placeholders
# These can be used for traditional video/audio grooming, not for Music Choice
# still frame video grooming. These PMT lines for traditional video/audio should
# appear BEFORE those for Music Choice.
# #
# This PMT line defines 1 video, 4 audio, and 2 data PES PIDs
PMT 101 41 6 090447490029 128 16 0 129 17 0 129 18 0 129 19 0 129 20 0 192 25 0 192 26 0
PMT 102 105 6 090447490069 128 80 0 129 81 0 129 82 0 129 83 0 129 84 0 192 88 0 192 89 0
PMT 103 169 6 0904474900A9 128 144 0 129 145 0 129 146 0 129 147 0 129 148 0 192 152 0 192 153 0
PMT 104 233 6 0904474900E9 128 208 0 129 209 0 129 210 0 129 211 0 129 212 0 192 216 0 192 217 0
PMT 105 297 6 090447490129 128 272 0 129 273 0 129 274 0 129 275 0 129 276 0 192 280 0 192 281 0
PMT 106 361 6 090447490169 128 336 0 129 337 0 129 338 0 129 339 0 129 340 0 192 344 0 192 345 0
PMT 107 425 6 0904474901A9 128 400 0 129 401 0 129 402 0 129 403 0 129 404 0 192 408 0 192 409 0
PMT 108 489 6 0904474901E9 128 464 0 129 465 0 129 466 0 129 467 0 129 468 0 192 472 0 192 473 0
PMT 109 553 6 090447490229 128 528 0 129 529 0 129 530 0 129 531 0 129 532 0 192 536 0 192 537 0
PMT 110 617 6 090447490269 128 592 0 129 593 0 129 594 0 129 595 0 129 596 0 192 600 0 192 601 0
PMT 111 681 6 0904474902A9 128 656 0 129 657 0 129 658 0 129 659 0 129 660 0 192 664 0 192 665 0
PMT 112 745 6 0904474902E9 128 720 0 129 721 0 129 722 0 129 723 0 129 724 0 192 728 0 192 729 0
# #
# Stop here if you have a 12:1 CherryPicker. No need for 113-118.
# #
PMT 113 809 6 090447490329 128 784 0 129 785 0 129 786 0 129 787 0 129 788 0 192 792 0 192 793 0
PMT 114 873 6 090447490369 128 848 0 129 849 0 129 850 0 129 851 0 129 852 0 192 856 0 192 857 0
PMT 115 937 6 0904474903A9 128 912 0 129 913 0 129 914 0 129 915 0 129 916 0 192 920 0 192 921 0
PMT 116 1001 6 0904474903E9 128 976 0 129 977 0 129 978 0 129 979 0 129 980 0 192 984 0 192 985 0
PMT 117 1065 6 090447490429 128 1040 0 129 1041 0 129 1042 0 129 1043 0 129 1044 0 192 1048 0 192 1049 0
PMT 118 1129 6 090447490469 128 1104 0 129 1105 0 129 1106 0 129 1107 0 129 1108 0 192 1112 0 192 1113 0
# #
# Stop here if you have an 18:1 CherryPicker
# #
```

```
PMT 119 1193 0 128 1168 0 129 1169 0 129 1170 0 129 1171 0 129 1172 0 192 1176 0 192 1177 0
PMT 120 1257 0 128 1232 0 129 1233 0 129 1234 0 129 1235 0 129 1236 0 192 1240 0 192 1241 0
PMT 121 1321 0 128 1296 0 129 1297 0 129 1298 0 129 1299 0 129 1300 0 192 1304 0 192 1305 0
PMT 122 1385 0 128 1360 0 129 1361 0 129 1362 0 129 1363 0 129 1364 0 192 1368 0 192 1369 0
PMT 123 1449 0 128 1424 0 129 1425 0 129 1426 0 129 1427 0 129 1428 0 192 1432 0 192 1433 0
PMT 124 1513 0 128 1488 0 129 1489 0 129 1490 0 129 1491 0 129 1492 0 192 1496 0 192 1497 0
```

```
##
```

```
# Include the above if you have a 24:1 CherryPicker
```

```
##
```

```
# <<<* * * ADD THIS FOR MUSIC CHOICE * * *>>>
```

```
##
```

```
# PMT 5-49 have been added for your Music Choice services. The 2nd column (5-49)
# are the outgoing MPEG Service Numbers. You may modify the MPEG number if
# desired. Each MPEG number (per row) must, however, be unique for the entire
# PMT table (that includes all of the above PMTs etc..).
```

```
##
```

```
PMT 5 1577 0 128 1552 0 129 1553 0 129 1554 0 129 1555 0 129 1556 0 192 1560 0 192 1561 0
PMT 6 1641 0 128 1616 0 129 1617 0 129 1618 0 129 1619 0 129 1620 0 192 1624 0 192 1625 0
PMT 7 1705 0 128 1680 0 129 1681 0 129 1682 0 129 1683 0 129 1684 0 192 1688 0 192 1689 0
PMT 8 1769 0 128 1744 0 129 1745 0 129 1746 0 129 1747 0 129 1748 0 192 1752 0 192 1753 0
PMT 9 1833 0 128 1808 0 129 1809 0 129 1810 0 129 1811 0 129 1812 0 192 1816 0 192 1817 0
PMT 10 1897 0 128 1872 0 129 1873 0 129 1874 0 129 1875 0 129 1876 0 192 1880 0 192 1881 0
PMT 11 1961 0 128 1936 0 129 1937 0 129 1938 0 129 1939 0 129 1940 0 192 1944 0 192 1945 0
PMT 12 2025 0 128 2000 0 129 2001 0 129 2002 0 129 2003 0 129 2004 0 192 2008 0 192 2009 0
PMT 13 2089 0 128 2064 0 129 2065 0 129 2066 0 129 2067 0 129 2068 0 192 2072 0 192 2073 0
PMT 14 2153 0 128 2128 0 129 2129 0 129 2130 0 129 2131 0 129 2132 0 192 2136 0 192 2137 0
PMT 15 2217 0 128 2192 0 129 2193 0 129 2194 0 129 2195 0 129 2196 0 192 2200 0 192 2201 0
PMT 16 2281 0 128 2256 0 129 2257 0 129 2258 0 129 2259 0 129 2260 0 192 2264 0 192 2265 0
PMT 17 2345 0 128 2320 0 129 2321 0 129 2322 0 129 2323 0 129 2324 0 192 2328 0 192 2329 0
PMT 18 2409 0 128 2384 0 129 2385 0 129 2386 0 129 2387 0 129 2388 0 192 2392 0 192 2393 0
PMT 19 2473 0 128 2448 0 129 2449 0 129 2450 0 129 2451 0 129 2452 0 192 2456 0 192 2457 0
PMT 20 2537 0 128 2512 0 129 2513 0 129 2514 0 129 2515 0 129 2516 0 192 2520 0 192 2521 0
PMT 21 2601 0 128 2576 0 129 2577 0 129 2578 0 129 2579 0 129 2580 0 192 2584 0 192 2585 0
PMT 22 2665 0 128 2640 0 129 2641 0 129 2642 0 129 2643 0 129 2644 0 192 2648 0 192 2649 0
PMT 23 2729 0 128 2704 0 129 2705 0 129 2706 0 129 2707 0 129 2708 0 192 2712 0 192 2713 0
PMT 24 2793 0 128 2768 0 129 2769 0 129 2770 0 129 2771 0 129 2772 0 192 2776 0 192 2777 0
PMT 25 2857 0 128 2832 0 129 2833 0 129 2834 0 129 2835 0 129 2836 0 192 2840 0 192 2841 0
PMT 26 2921 0 128 2896 0 129 2897 0 129 2898 0 129 2899 0 129 2900 0 192 2904 0 192 2905 0
PMT 27 2985 0 128 2960 0 129 2961 0 129 2962 0 129 2963 0 129 2964 0 192 2968 0 192 2969 0
PMT 28 3049 0 128 3024 0 129 3025 0 129 3026 0 129 3027 0 129 3028 0 192 3032 0 192 3033 0
PMT 29 3113 0 128 3088 0 129 3089 0 129 3090 0 129 3091 0 129 3092 0 192 3096 0 192 3097 0
PMT 30 3177 0 128 3152 0 129 3153 0 129 3154 0 129 3155 0 129 3156 0 192 3160 0 192 3161 0
PMT 31 3241 0 128 3216 0 129 3217 0 129 3218 0 129 3219 0 129 3220 0 192 3224 0 192 3225 0
PMT 32 3305 0 128 3280 0 129 3281 0 129 3282 0 129 3283 0 129 3284 0 192 3288 0 192 3289 0
PMT 33 3369 0 128 3344 0 129 3345 0 129 3346 0 129 3347 0 129 3348 0 192 3352 0 192 3353 0
PMT 34 3433 0 128 3408 0 129 3409 0 129 3410 0 129 3411 0 129 3412 0 192 3416 0 192 3417 0
PMT 35 3497 0 128 3472 0 129 3473 0 129 3474 0 129 3475 0 129 3476 0 192 3480 0 192 3481 0
PMT 36 3561 0 128 3536 0 129 3537 0 129 3538 0 129 3539 0 129 3540 0 192 3544 0 192 3545 0
PMT 37 3625 0 128 3600 0 129 3601 0 129 3602 0 129 3603 0 129 3604 0 192 3608 0 192 3609 0
PMT 38 3689 0 128 3664 0 129 3665 0 129 3666 0 129 3667 0 129 3668 0 192 3672 0 192 3673 0
PMT 39 3753 0 128 3728 0 129 3729 0 129 3730 0 129 3731 0 129 3732 0 192 3736 0 192 3737 0
PMT 40 3817 0 128 3792 0 129 3793 0 129 3794 0 129 3795 0 129 3796 0 192 3800 0 192 3801 0
PMT 41 3881 0 128 3856 0 129 3857 0 129 3858 0 129 3859 0 129 3860 0 192 3864 0 192 3865 0
PMT 42 3945 0 128 3920 0 129 3921 0 129 3922 0 129 3923 0 129 3924 0 192 3928 0 192 3929 0
PMT 43 4009 0 128 3984 0 129 3985 0 129 3986 0 129 3987 0 129 3988 0 192 3992 0 192 3993 0
PMT 44 4073 0 128 4048 0 129 4049 0 129 4050 0 129 4051 0 129 4052 0 192 4056 0 192 4057 0
PMT 45 4137 0 128 4112 0 129 4113 0 129 4114 0 129 4115 0 129 4116 0 192 4120 0 192 4121 0
PMT 46 4201 0 128 4176 0 129 4177 0 129 4178 0 129 4179 0 129 4180 0 192 4184 0 192 4185 0
PMT 47 4265 0 128 4240 0 129 4241 0 129 4242 0 129 4243 0 129 4244 0 192 4248 0 192 4249 0
PMT 48 4329 0 128 4304 0 129 4305 0 129 4306 0 129 4307 0 129 4308 0 192 4312 0 192 4313 0
PMT 49 4393 0 128 4368 0 129 4369 0 129 4370 0 129 4371 0 129 4372 0 192 4376 0 192 4377 0
```

```
##
```

```
# Here are extras for additional Music Choice services other than 5-49.
```

```
# Discard if you do not need them.
```

```
##
```

```
PMT 50 4457 0 128 4432 0 129 4433 0 129 4434 0 129 4435 0 129 4436 0 192 4440 0 192 4441 0
PMT 51 4521 0 128 4496 0 129 4497 0 129 4498 0 129 4499 0 129 4500 0 192 4504 0 192 4505 0
PMT 52 4585 0 128 4560 0 129 4561 0 129 4562 0 129 4563 0 129 4564 0 192 4568 0 192 4569 0
PMT 53 4649 0 128 4624 0 129 4625 0 129 4626 0 129 4627 0 129 4628 0 192 4632 0 192 4633 0
PMT 54 4713 0 128 4688 0 129 4689 0 129 4690 0 129 4691 0 129 4692 0 192 4696 0 192 4697 0
PMT 55 4777 0 128 4752 0 129 4753 0 129 4754 0 129 4755 0 129 4756 0 192 4760 0 192 4761 0
PMT 56 4841 0 128 4816 0 129 4817 0 129 4818 0 129 4819 0 129 4820 0 192 4824 0 192 4825 0
PMT 57 4905 0 128 4880 0 129 4881 0 129 4882 0 129 4883 0 129 4884 0 192 4888 0 192 4889 0
PMT 58 4969 0 128 4944 0 129 4945 0 129 4946 0 129 4947 0 129 4948 0 192 4952 0 192 4953 0
PMT 59 5033 0 128 5008 0 129 5009 0 129 5010 0 129 5011 0 129 5012 0 192 5016 0 192 5017 0
PMT 60 5097 0 128 5072 0 129 5073 0 129 5074 0 129 5075 0 129 5076 0 192 5080 0 192 5081 0
PMT 61 5161 0 128 5136 0 129 5137 0 129 5138 0 129 5139 0 129 5140 0 192 5144 0 192 5145 0
```

Step 2: Configure Default Grooming Commands

The next step would normally be to apply the new Configuration file. To avoid an extended loss of service, add default grooming commands to the Configuration file so that services are regroomed automatically after the reboot.

This feature requires CherryPicker Desktop Software 2.0.2c or higher. Default grooming commands are optional.

Most often used default grooming commands:

NAME_MGR <name>

Labels the CP Manager.
Example: NAME_MGR Remux_T1

NAME_IN_FEED <feed> <name>

Labels an input transport stream.
Example: NAME_IN_FEED C1 HITS2

NAME_IN_PROG <feed> <mux...always 1> <MPEG#> <name>

Labels a service within a given transport stream.
Example: NAME_IN_PROG C1 1 1 PPV_1_Digital

NAME_OUT_FEED <mux...always 1> <name>

Labels the output multiplex.
Example: NAME_OUT_FEED 1 Remux_T1

NAME_OUT_PROG <feed...always 1> <mux...always 1> <output MPEG#> <name>

Labels output programs.
Example: NAME_OUT_PROG 1 1 7 HotChoice_Digital

GROOM <input feed> <input mux...always 1> <input MPEG #> <output feed...always 1> <output mux...always 1> <output MPEG #> <priority> <minimum bitrate> <maximum bitrate...in bits per second> <enable recoding...should be 0 for yes...1 for no>

Grooms services from input to output.
Example: GROOM C2 1 15 1 1 18 5 0 15000000 0

- SD programs, must have the Recoding flag set to 0.
- HD programs, must have maximum bit rate set to 20000000 and Recoding flag set to 1.
- Music Choice programs, must have the Recoding flag set to 1.
- Default grooming commands cannot be used to Custom Groom. Custom grooming must be done manually from the CherryPicker Desktop application.

More examples of these default grooming commands can be found in C:\CherryPicker\ConfigExamples\Default_Grooming_ConfigFile.txt.

Default grooming commands should be placed at the bottom of the PMT table, but they should appear before any commands which read "SET_INPUT_MUX_TYPE" (if present).

For default grooming commands, we suggest creating them in this order:

NAME_MGR, all the NAME_IN_FEED, all the NAME_IN_PROG, the NAME_OUT_FEED, all NAME_OUT_PROG, then each GROOM command.

Step 3: Apply the New Configuration File

When you apply the new Configuration file, the CherryPicker WILL REBOOT and all previously groomed programs will be dropped. We recommend applying the new Configuration file during a maintenance window in order to avoid negatively affecting service.

To apply the new Configuration file:

1. From the **CherryPicker Desktop** window, select the **CherryPicker Device (CPD)** to which you want to apply the edited Configuration file.
2. Click **Load Configuration file**, select the **Other** radio button, and then type in the full name of the Configuration file including the file extension.

Example: music_choice_configuration_file.txt

3. Click **Apply**.

Step 4: Setup Grooming

You have the choice of grooming from a Configuration file or grooming manually. If you have chosen to groom from a Configuration file, skip this section.

If you decide to manually regroom, follow the instructions in the CherryPicker User Guide, "Chapter 6: Static Grooming" to regroom services.

- Custom grooming is NOT required nor recommended to enable Music Choice interactivity.
- It is essential that you select **Do Not Recode** in the **Advanced Grooming Options** window. If Do Not Recode is not selected, the still frame video will be ignored and the Music Choice service will be groomed improperly.

Troubleshooting

TIP 1: General Awareness

Typically, when Music Choice is about to make a significant change to their service a notification is sent to a member of your staff. Keep in contact with that person regarding the status of upcoming Music Choice changes.

TIP 2: Signal Strength

Issues with signal strength can affect Music Choice delivery. Monitor your receivers for proper signal strength.

TIP 3: Sun Outages

Sun Outages can cause temporary service interruption. "Sun Outages occur when energy from the sun becomes greater than [effectively blocking out] that transmitted from the satellite. This happens twice a year during the spring and autumnal equinox and effects all satellites in the geosynchronous orbit."¹ Simtel provides a Sun Outage Calculator at <http://www.simtel.net/pub/pd/49358.html> which may help you predict what times your receivers may be affected.

¹ Reference: SA+S Limited at <http://www.sasltd.com/T/faq/faq2.html>

TIP 4: Stream Analysis

The CherryPicker Desktop Application contains a Stream Analysis package. This feature can be used to verify that your CherryPicker is routing Music Choice services to the output of the CherryPicker correctly.

TIP 5: Bandwidth

Be aware of your QAM modulation bandwidth demands. The CherryPicker outputs an unmodulated baseband transport stream. This transport stream will be remodulated by your QAM modulator (IRT, MPS, QAM, etc.).

TIP 6: Missing Audio and Still Frame Video.

- Make sure that both the CP Device and CP Controller are at version 2.0.2.c or higher.
- Confirm that your network administrator is aware that these Music Choice programs are still frame video services (DAC, DNCS, etc.)
- Confirm that you modified the Configuration file to include Video Type and a Video PID.
- Verify you have padded the PMT table in your Configuration file per the maximum recode available.
- Confirm that Music Choice services are set to Do Not Recode.
- Manually regroom any missing services.
- If you used default grooming commands in the Configuration file and a few services are missing, the grooming message may be getting lost due to the large number of simultaneous grooming commands. To avoid this problem, manually regroom the program that is missing.

TIP 7: Reboot QAM Modulator

Because the PID values you have pasted into the new Configuration file may differ from those previously used, your modulation device may not have picked up the changes. Typically, rebooting the modulator resolves the problem (i.e. IRT, MPS, QAM, etc.).

Terayon Technical Support

If you encounter difficulties, please contact Terayon Technical Support.

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