



MultiMon Meeting: May 5, 2009

Location: Kennewick Office

**Attendees:** Dave Marvin, Alan Brower, Scott Livingston & Jenn Nighbor

**Absent:** None

**Recorded by:** Jenn Nighbor

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### **Agenda Items: MultiMon**

Purpose of this is to share our knowledge to avoid mack truck syndrome. If Dave is unable to map out configurations, we will be able to take that on and back up Dave. Not going to talk about the databases.

Everything Dave knows he gained from original binder that Sandy put together, MultiMon Help doc.

In order not to count a fish twice MultiMon does not increment the counter files.

You tell me what's more useful, if we run through the documentation and touch on the hardware files and database, hit in detail the maps, my suggestion is to do that and then take a look at some of the existing configurations.

**Important thing to remember:** Database files with the rocket port cards and PLC controls are constrained to about 1.2 million tags. Individual tag codes in the database at a particular site, we are limited to 1.2 million tags.

The only exception is BO3; the parallel port uses different DOS memory than the PLC does.

If we need to load more tags than the limit, we would back out tags that have already gone by in order to have the room to add the additional tags.

Historic Action Codes (2008) [www.ptocentral.org/cgi-bin/sbyc\\_site\\_sum.cgi?SY=2008](http://www.ptocentral.org/cgi-bin/sbyc_site_sum.cgi?SY=2008)

As always we have Action Code 254 and 255, 255 is our default action. 255 diverts right and 254 diverts left.

If you hover over any of the totals it will tell you what is going on, divert left, divert to river, divert all, etc.

Action Code 77 – Collecting 1 out of 4, 5 days a week. (This is not typical).

Dave has one binder per year for SbyC requests which contain letter of intent, emails, and lists of tags codes.

There are a couple of ways an Action Code could be active, toggle on/off, or a date range.

MultiMon looks for a tag, if a tag is verified to be genuine, looks for a location, then checks to see Action Code, and if the Action Code is active.

### **3 Components:**

Tag Database File  
Map-of-Site File  
Hardware file

**Make sure to save any changes.**

**Other critical thing:** Before you load a new database file, CLEAR the old database file.

If you see that it goes into sort, pull the plug and do the sort in text pad. You can delete the duplicates in text pad.

MultiMon was written so that researchers had their own database with access at each site. When we took it over, we maintained control of the master database. Action code 48 is the same at McNary as it is at Granite.

If a request comes in with tags that have already been entered, it's up to the researchers to sort that out. Need to alert the researcher to any possible conflicts with duplicate tags and actions.

Default Action is that it doesn't go into the database with an Action Code. Default Action at transportation facilities, the PIT tagged fish goes back to the river.

In 1993, there wasn't any spill (1996) the only way to get fish in the river was to put the tagged fish back.

MultiMon has all of the functionality essentially set-up to build a database and map file at the site, we don't do any of that. We do it off-site and then push it to the site.

### **Map the PIT Tag Site and Define Separation Protocols Menu**

**\*Caution\*** If you do not save the new Map-of-Site file, MultiMon will use the name of the last file loaded as the name for the new Map-of-Site file; however, when MultiMon restarted it would load that last file and not the new Map-of-Site file....

The map file is the brains of the operation.

The hardware file doesn't change unless the hardware changes.

When you do a Protocol 6, it uses line 13 (DailyReset time). 0600 across the Basin.

### **Edit Map-of-Site File**

When a tag record is received by MultiMon it includes RocketPort/Controller and Transceiver/Coil IDs. If a Tag Database file is loaded and the tag code is in it, then MultiMon will also attach its assigned Action Code to the tag code. MultiMon then starts searching the 40 diversion units to find the correct combination of RocketPort/Controller ID, Transceiver/Coil ID and Action Code. Once it finds a match, MultiMon then looks in the attached Define-Action-Codes Table and Separation protocol screen to determine how to process the tag.

If the tag is not in the Tag Database file, then MultiMon searches for a diversion unit that contains the RocketPort/Controller and Transceiver/Coil IDs. It uses the first Diversion Unit it finds that contains this match and processes the tag according to how this Diversion Unit is set up.

**\*Note\*** MultiMon searches starting at Coil A. If a Diversion Unit does not use all five coils, set the RocketPort/Controller ID of the first unused coil to FF. (This will tell MultiMon to stop searching).

**Delay and Open Times:**

These values typically must be determined by trial and error, because they will depend on how quickly the diversion gate responds, water velocity, and fish behavior, which might vary significantly for different species (e.g., steelhead tend to swim more in the flumes than Chinook salmon). It is easiest to establish delay time by examining tag code records from fish or tagged sticks to utilize the attached millisecond times (the only other real option is to guess). One uses the attached millisecond times to calculate the average time it takes for tagged fish or sticks to travel between sequential coils... (Info from MultiMon help doc)

**\*Note\*** Make certain that you list the coils in rows A through E according to their physical order, because MultiMon assumes that row A is the farthest upstream...

**\*Caution\*** Make certain you have minimum 1 msec in the delay and open time for the 5 coils. Delay times should always be greater than zero.

If you get a bad ID, the RocketPort does not match what is out there. Hardware file could be right and the map file has bad info, or map file is correct and the hardware file was wired up incorrectly.

**Different Separation Protocols:**

0 = Monitor Only

1 = Divert all Tags (Default Action)

2 = Divert by Action Code

3 = Divert M/N ratio of all tags

4 = Divert M/N ratio by Action Code

5 = Selected times divert by Action Code

6 = Selected dates divert by Action Code

7 = Definable 0-96 hr divert by Action Code (w/specific date & time to start and specific date & time to end)

Separation Protocol	Uses Default Action Code	Uses Tag Database Action Codes	Need M/N Ratio, Times?, Julian Dates defined?	Possible Tag Record Messages
0	NO	YES	NO	Monitor AC* Not Found
1	YES	NO	NO	DivertAll
2	NO	YES	NO	Divert_AC NotFound Monitor_AC
3	YES	NO	M/N	DivertM/N SkipM/N
4	NO	YES	M/N	Divert_AC Skip_AC Notfound Monitor_AC
5	NO	YES	TIME	Divert_AC Skip_AC NotFound Monitor_AC
6	NO	YES	DATES	Divert_AC Skip_AC NotFound Monitor_AC
7				

\* The “AC” in these messages would be replaced with actual decimal values of the appropriate Action Codes. “NotFound” Messages are attached to tag codes not found in the Tag Database file. “Monitor\_AC” Messages are attached to tag records for Separation Protocols 2, 4, 5, and 6 when the action for their Action Codes has been defined with an “X” or “no output signal” is to be sent, because this is equivalent to the action applied to tags using Separation 0 or monitor-only. “Skip\_AC” Messages are attached to tag records after the daily or seasonal maximums have been reached for that Action Code or for fish in the M/N ration that are not diverted. This informs the user that these fish were not diverted.

If we are diverting M/N, that would be 1/4, 5/6, etc.

**NOTE: Diversion Protocol:** Dates state From – To, but in fact it is Through.

You can stack a number of Diversion Protocols together.

Now using Action Code 250 for Separation Protocol 1. By default it comes up 101 and Dave is replacing with 250.

**\*Important\*** As long as a diversion unit is defined with Separation protocol 0, no output signal will be sent even if in the attached F4 table, an output signal is defined for a particular Action Code.

**\*Note\*** One should not define the Default Action code with a “no output signal” (X) in the F4 Table, because then the messages such as DivertAll would be meaningless. Furthermore, the defined action (monitor only) would be the same as that defined by Separation Protocol 0 and thus, that is the correct way to set up no action. The program will give you an error message if you try to use “no output signal” (X) with Separation protocols 1 and 3. (Info from MultiMon help doc)

Once definitions are in the map file you never change them, you can deactivate them, but never change them.

**You can only define one separation protocol for each diversion unit.**

**\*Important\*** When you are actively collecting tags, the M/N ratio counter gets restarted every time you exit to the Main menu or out to DOS/WIN95. In other words, if you are diverting 1 in 5 fish and are on fish 3 in the counter and, therefore, should be skipping the next two fish, if you exit to the Main menu, when you reenter the Data file mode, you will divert the next fish instead of skipping it.

### **Order of Diversion Units (Very Critical)**

The order of the diversion units does not matter for tags in the Tag Database file as the program will search all 40 Diversion Units to find a match for the correct combination of RocketPort/Controller ID, Coil ID and Action Code in a Diversion Unit with Separation protocol 2, 4, 5, or an active 6 (if the Julian dates do not include the current Julian date then this diversion unit is basically invisible to the program; i.e., it ignores it)... (Info from MultiMon help doc)

If you get a Bad ID, if you know the transceiver but don't know the port, fire the timer tag and it will give you the info you need.

**\*Caution\*** If one were accidentally to type in 401, both bit 10 and bit 0 would be set and both slide gates would be opened.

### **Define Action Code Table**

“Output” default is X

### **Daily and Seasonal Maximums**

Separate counter files are maintained for tags recorded over the defined day and for the entire season. This structure allows the user to define for each Action Code the maximum number of fish he wants diverted on a daily and/or seasonal basis. Defining each Action Code separately allows one to set different maximums for the same gate. For example, a user for a particular Action code might want to divert 1,000 fish over the season, but only want to divert a maximum of 50 fish per day. Since these counters are separate, in this case MultiMon would divert a maximum of 50 fish/daily until 1,000 fish are diverted for that season (minimally, this would take 20 days, but it could take longer if fewer than 50 fish pass on any one day). After either maximum number is reached, MultiMon stops sending output signals to the diversion gates and switches the Message from Divert\_AC to Skip\_AC so that the Message reflects the action taken. (Info from MultiMon help doc)

**Note:** When appending new Action Codes to a Diversion Unit **DO NOT** reorder the existing Action Codes, they must persist for the remainder of the season.

**\*Important\*** One can only set maximum limits for Divert Messages that include Action Codes. Furthermore, if a M/N ratio is being used (i.e., Separation protocol 4) the Skip\_AC fish are not included in the Maximum counts.

**Reviewed an active Map File for JDJ-PC2.**

### **Edit Map File**

**Note: Enable Counters is ALWAYS a Yes (Y)**

**Note: Diversion Priority** – Will search through the Protocols 2, 4, Active 6, and 7 and if not found will then look for Protocols 0, 1 and inactive 6.

### **Data File Mode – List of Diversion Unit Titles**

This screen gives a quick look at the Diversion Units you have by titles and status.

### **Raw Map Files**

**\*Critical\*** First thing to notice – Diversion Unit 1 in raw file is Diverter O. MultiMon is 1-50 and in the raw files it is 0-49.

Raw Files – Status 0 is on, 1 is off, 2 is Monitor

Place to change status in MultiMon is on the List of Titles screen, you would use F3 to Toggle from On to Off, to Monitor. Need to be careful, because this is a global change for all of those diversion units under that heading.

Raw File Mode = MultiMon Current Separation Protocol value

MaxMode = MultiMon New SP after maximum is reached value

Note: (Value in raw file is always the same as in MultiMon)

M = Protocol 3

N = Protocol 4

Range =

Start and Stop = Protocol 5

From lines = date ranges from Protocol 6

StartDT & Duration = Protocol 7

All of the parameters for all of the protocols are included in the header for each diversion unit.

**Raw File “Diverter” = MultiMon “Diversion Unit”**

Each protocol must be defined in its own Diversion Unit.

**Advanced Counters** in Raw File use the one based numeration as displayed in MultiMon. (Ex: Definition 16 & 17 as stated in the raw file refers to the 16 and 17 in MultiMon and has Diversion Unit Titles displayed).

Reviewed various map files including more challenging examples from B2J.

**The important thing** is to go through and make sure the cut and paste was truly successful and that what you need to have is there.

Meeting adjourned at