



Blaise Services At Westat Technical Notes Publication

Technical Note on Blaise Call Scheduler, Handling Special Situations

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Technical Notes are intended to facilitate the sharing of useful technical information about issues and solutions concerning the use of Blaise for CATI. These notes arise from our Blaise work and we believe they may be of use in other situations. The ideas contained in this Technical Note may or may not be appropriate for your specific needs. We invite users to submit (to blaise@westat.com) relevant issues, resolutions, or questions related to this Technical Note.

This Technical Note documents how to handle special situations in Blaise CATI. Menu choices, dialogs, executable names, and selection text are in italics. See VII below for a list of executable file names for each of the CATI utilities. This Technical Note supplements material found in chapters 10 and 11 of the Blaise Developer's Guide. The term *case* is also known as a *form* in Blaise. This document assumes some familiarity with Blaise CATI.

I. Delivery Problems

On a given day if the scheduler does not continue to deliver numbers to interviewers, first determine the status situation for the cases in the daybatch. You can do this by selecting *View Daybatch* in the CATI management program *Btmana*. If virtually all of the cases have a status of no need today, you need to create an entirely new daybatch or add cases with Maniplus. In order to entirely create a new daybatch with *Btmana*, interviewers must stop calling. Maniplus on the other hand, can add cases to the daybatch during CATI operations.

Alternatively if *View Daybatch* in *Btmana* indicates that a number of cases have been accorded the *not-active* status, you can activate all these non-active cases except those with a hard appointment. Do this by highlighting *View Daybatch* and then selecting *Management/Activate* from the title bar.

Problems with the delivery of numbers may be attributable to settings in the associated CATI specification file. These settings include:

- Crew Definition – No numbers are delivered outside of the Start and End times for the crew. For example, if the first crew is not scheduled to start at 10AM, no cases are delivered until 10AM including those with a hard appointment for an earlier time.
- Time Zones – No numbers (except for hard appointments) are delivered for each time zone before or after the *no calls time* limits. For example, for a call center in the Eastern Time (EST) zone, if all the

cases in the daybatch are for Pacific Time (PST) zone and no calls are to be made before 9 AM, no cases are delivered until noon EST (since there is a 3-hour difference).

- Routebacks for Soft and Medium Appointments – Routebacks govern which cases an interviewer or group of interviewers may receive. Routeback information is held in the datamodel in a string field that is given the *To Whom* function in the CATI specification program. Soft and no-preference appointments are routed back only to the interviewer (or group) specified in this field. This means that the scheduler does not make these cases available unless the specified interviewer (or group) is currently recognized by the scheduler as being logged on. You can select *Interviewer* (or *Groups*) in *Btmana* to determine who is recognized as logged on at any given time. If *Btmana* lists only unknown interviewers as logged on and routebacks are to be made on the basis of groups, no cases can be delivered at all until an interviewer who is a specified member of a group is recognized as logged on.
- Routeback and De-activation Delays for Medium and Hard Appointments - If a field is given the *To Whom* function, hard and medium appointments are routed back only to the interviewer (or group) specified in this field provided that the relevant de-activation delay has not expired and the interviewer (or group) is currently recognized as being logged on. If de-activation delays are lengthy and the interviewer (or group) is especially busy, these cases may not be delivered in a timely manner. As a complicated example, suppose that in the CATI specification file the routeback is set at route back to interviewer and the de-activation delays for interviewers and groups are set at 30 and 300 respectively. Further suppose that Interviewer1, whose main group is Difficult, makes a hard appointment for 1 PM on a particular day for a particular case. When this case becomes available at 1 PM for delivery on the particular day, Interviewer1 is busy on another interview that lasts an hour. The scheduler holds the case until 1:30 and then tries to route it to other members in the Difficult group between 1:30 and 6:30.
- Only One Group is Working - It is possible to have a situation in which the daybatch has run out for all but one group. Interviewers in that group have work, but other interviewers do not. You can handle this situation by reducing the de-activation delay(s), by creating a new day batch, or by adding to the daybatch with Maniplus.
- Minutes Between Busy Dials – Too much time may be allowed for the minutes between busy dials.
- Maximum Number of Dials – Cases may go to no need today status prematurely because the upper limit on no answer dials may be set too low. For example, if the maximum number of dials is set at 2, after two consecutive no answers, even cases with a hard appointment receive the status of no need today.
- Time Interval Between No Answer Dials - For soft and medium priority cases, the maximum number of dials also determines the time interval between no answer dials. This time interval may be too long. For example, if a case is to be called back between 5 and 9 in the evening and there is a maximum of 2 dials, the scheduler is set to deliver the case once between 5 and 7 and once between 7 and 9.
- Time Slices – If time slices are used, cases with default priority with no answer treatment are only tried once in each time slice. If there are no more time slices available for the case on a given day or you have not checked off *Allow slices to be tried on the same day* on the *Time Slice* tab, once such a case receives one *no answer* it is given the *no need today* status. For example, if *Allow slices to be tried on the same day* is not checked off in the specification file and a case receives a *no answer* during the 9AM to 11AM time slice, it is not called again for the rest of the day even if the daybatch has run out of numbers. In addition, a case may be tried only once on a given day if it has already been tried previously on all the other time slices available that day. This is more likely to happen the longer a case remains available in the database. As an example, assume that there are 7 time slices defined for Mondays through Fridays and that the 5 latest time slices have already been tried for a case. Even though *Allow slices to be tried on the same day* is checked off, the maximum number of tries for each time slice is set at one. (A time slice is considered to have been tried even if a dial during that time slice results in an appointment or a busy dial.) The case is not tried during the first time slice because the crew is small and cases with any

kind of appointment are given priority. The case comes up during the second time slice and receives a no answer. The scheduler then does not deliver the case for the rest of the day.

- **Daybatch Size** – Your daybatch size may be too small relative to the size and effectiveness of your crew. You can continue to increase the size of the daybatch until numbers are delivered non-stop throughout the interviewing period. There is a small chance of a performance penalty if the daybatch is much larger than needed.
- **Daybatch Select** – You may be using selection criteria that are producing daybatches that are considerably smaller than your target daybatch size. For example, assume that you have a target daybatch size of 500 and specify that only EST cases should be included. If there are only 200 EST cases in your database, your daybatch can only include these cases. Alternatively, your selection criteria may restrict the variety needed in order to keep case delivery going throughout the day. For example, if you only select EST cases and don't call after is set at 9PM, no cases will be delivered to a crew that works past 9PM.
- **Quota Control** – Once the quota has been reached for a certain value in a field selected for quota control, cases with this value are no longer delivered unless they have a hard appointment. As an example, if the field *AgeCategory* has a count set at 100 for each of its three possible categories of *Under20*, *From20to60* and *Over60*, once 100 cases for each of these three categories have been given a dial result of response, no cases (except those with hard appointments) will be delivered. You can look at the Quota control option in Btmana to determine the categories for which quotas have been reached.
- **Cycling Through Just Part of the Daybatch**-- On a certain day you may notice that the scheduler seems to be cycling through just a part of the daybatch over and over again. This may be happening because there are a substantial number of cases with appointments. All cases with a pending appointment for the current day are accorded hard, medium or soft priority. Since cases with default priority are only delivered after all other cases in a given time interval, if there are more cases with appointments during the interval than interviewers to handle these cases, no default cases will be delivered.

The scheduler may also be cycling through just a part of the daybatch because it is busy chasing busies. Once a case, even a default case, receives a busy, the scheduler automatically accords a higher priority to chasing the busy than it accords to default cases that have never been touched or that have been receiving no answer, answering service and no preference appointment dial results.

Cases with appointments create a particular problem when they start receiving busies because they can be delivered multiple times a day on a high priority basis. The extent to which the scheduler chases a busy depends on the values given to *Maximum number of dials* and *Maximum number of busy dials* in the associated CATI specification file. If the *Maximum number of dials* is set to 4 and the *Maximum number of busy dials* is set to 6, in the course of an interviewing day, cases with hard, medium and soft appointments can receive up to 24 busies. With these settings, once a default case receives one busy, it can be re-delivered up to five times during the day with a higher priority than default priority provided that it continues to receive busies. Obviously, if chasing busies is the primary reason why the scheduler cycles through just a part of the daybatch, you can consider reducing the values in the *Maximum number of dials* and *Maximum number of busy dials* fields if you want to increase the overall number of cases called.

II. Composition Of The Daybatch

Selection criteria (set using the *Daybatch select* tab of the *BTSspec* specification file) can determine which cases are included in or excluded from the daybatch. In addition, cases (unless a hard appointment is set for the current day) are excluded from the daybatch due to the following specification file settings:

- Maximum Number of Calls is Reached – Cases are automatically excluded if they have had the maximum number of calls. Normally all the dials made during one day are considered to be part of one call (unless a hard appointment made for later the same day increments the call counter by 1).
- Days Between No Answer Calls - If a case ends with a no answer result on day 1 and the days between no answer calls is set at 2, it cannot be included in a daybatch until day 4.
- Quotas Reached, Case Level – A case is automatically excluded from the daybatch if it contains a value in a field selected as a quota field (at the case level) for which the quota has already been reached. For example, if the quota count of 100 for *Under20* in the *AgeCategory* field has already been reached, cases with *Under20* in the *AgeCategory* field are no longer included in any newly created daybatch. (Note quotas can also be used within a datamodel to route around or include sections or fields. This latter use of quotas does not affect call scheduling.)
- Time Slices – When time slices are used, once a case with default priority has already been tried the maximum number of times in each time slice, it never appears again in a daybatch.

If you have, for example, a case with 6 calls with 6 being the maximum number of calls and want to include this case in the daybatch, you can do one of the following:

- Increase the *BTSpec* specification file setting for the maximum number of calls before creating the daybatch
- Instruct an interviewer to browse up this case
- Instruct a supervisor to select this case in the CATI management program *Btmana* and apply a treatment
- Run a Manipula program that empties (or decrements) the *CatiMana.CatiCall.NrOfCall* field for a case

System-defined selection criteria are automatically applied during the creation of a daybatch. These criteria involve:

- Dial Results – Cases are automatically excluded if their most recent dial result is *response*, *refusal*, *disconnected* or *other*.
- Number of Calls – When dealing with cases with *default* priority, the scheduler includes first the cases with the fewest calls.
- Appointment Criteria – Cases with specific non-expired appointment criteria are automatically excluded if the current day does not meet the specific criteria. As examples, cases where only Wednesdays are selected as the day for callbacks, are never in a Tuesday daybatch and cases with callbacks set for April 1–4 are not included in any daybatch created before April 1 (although they can be in daybatches created after April 4).

III. Creation Of A Daybatch

A daybatch for a given day must be created before any phone numbers can be delivered to interviewers. To create a daybatch manually use *Btmana*, select *Management/Create Daybatch* or click on the sun icon. Make sure that the date that appears on the *Create Day Batch* screen is the desired date. You cannot create a daybatch for a past date or a date that is not given as a survey date in the specification file. You can however make and re-make a daybatch on any one day. The daybatch file has a *bth* extension and automatically appears in the same directory as the database files. You can also make a daybatch as part of a batch program using *Btmana* overnight so a daybatch is ready for interviewers when they arrive to work in the morning.

You cannot create a complete daybatch if there are any invalid times or dates relative to what is specified in the specification file. That is, if in the appointment block (*CatiMana.CatiAppoint*), there is a date outside of the survey definition dates, the creation of the daybatch will inelegantly stop. That is, it will stop running part way through and not leave a message as to what the problem is. This can happen only if your instrument does not use the default appointment block. If it does happen, you need to run DEP in CAPI, a Manipula, or Maniplus program to correct the appointment data. The hard part about resolving this kind of situation is finding the record or records that violate the appointment criteria.

The number of cases in the daybatch is reported after the daybatch is successfully created. This number may be less than the target number set in the specification file because there are fewer cases in the database than the target number or because the specification file settings or selection criteria result in a smaller number. You may be able to increase the number of cases in the daybatch by changing the specification file and recreating the daybatch.

A new case is added to the daybatch when

- An interviewer browses it up by using *File/Browse* in the data entry program (the interviewer has access to the whole data file while browsing).
- A supervisor treats the case using the *Treat Form* screen (which is accessible by first choosing the *Forms* option in *Btmana* and then selecting the case).
- The *Daybatch_add* function available in Maniplus is used.

Cases are not physically removed from the daybatch, but once they receive a *no need today* status they are no longer delivered to interviewers. This is also true for *Daybatch_del* function in Maniplus.

It is possible to create a daybatch entirely with Maniplus. This gives maximum control over the composition of the daybatch.

IV. Unexpected Delivery of A Phone Number

The appointment time listed on the *Case Summary* screen is always in interviewer time. Thus, for example, a callback set between 9:30 AM and 11 AM PST appears on the *Case Summary* screen as set between 12:30 PM and 2 PM and is delivered between these times (provided that interviewer time is EST and a *TimeZone* field is selected in the specification file).

V. THE ROLE OF MANIPULA, AND MANIPLUS

Manipula is a data manipulation program in Blaise that runs strictly in batch. It can access, write, and change data fields in an ASCII or a Blaise file. Maniplus is an extension of Manipula. It can be run interactively with dialogs and menus and it can create, modify, or delete a record in a daybatch. Maniplus or Manipula can be run in batch at night. Maniplus can be run real-time. Either one can update call result codes, appointments or other administrative or survey data in a Blaise data file, but only Maniplus can modify a daybatch. The appropriate use of these programs greatly expands the management options in Blaise CATI and their use complements the core functionality of the call scheduler. Please refer to the Developer's Guide, chapters 10 and 11, and to the Maniplus manual for brief examples of these uses.

VI. The History File

Blaise automatically appends dial information to an ASCII (comma delimited) history file every time a case is treated irrespective of whether the scheduler delivers it to an interviewer or the interviewer browses it up. Dials made by the supervisor using *Btmana* are not recorded in the history file. The history file always appears in the same directory as the database and contains a *bth* extension. You can tell which cases were browsed up by an interviewer instead of being delivered by the scheduler by their blank Entry Priority fields.

You can view a history file summary or a list using *Bthist.exe*. To see a detailed listing by date and time of each dial, select *View/ListView*. The history file provides both the primary key and the internal key (join ID). In addition it shows the *CallNumber*, *DialNumber*, *WhoPhoned*, *Entry* and *Exit Priorities*, *DialResult*, and the *AppointType* if an appointment is made. A recent addition to Blaise CATI is the capability to add your own fields to the history file (see *Help* in the Control Centre).

The History file is an ASCII file that can be reviewed in other programs such as a spreadsheet program. This can be valuable for reviewing the history in a different sort order than date and time. A small utility datamodel called *History.bla* found in the Blaise systems directory under *Doc/Chapter10/History.bla* can be used to browse the history file in the order of any secondary key that you define in the *History.bla* datamodel. Since secondary keys can be a concatenation of fields, you can view a nested sort order with *History.bla*. Once you read the history file records into a Blaise dataset, you can browse this dataset in the browser by the *InternalKey* (which is a secondary key) in order to see all the dials listed together for each case. You need to run an ASCII to Blaise Manipula program, frequently called *LoadHist.Man*, that converts this ASCII file into a Blaise dataset, making sure that the primary key definition in *History.bla* conforms to that in the history file.

VII. Executables

CATI supervisors or managers should have access, normally through desktop icons (shortcuts), to three, possibly four, different executables. These executables are:

- *Btspec.exe* – Use *Btspec.exe* to modify the settings in the CATI specification file (the *.bts* file) at any point during the survey. Some changes, such as fields selected to appear on the dial screen and minutes between busy dials, go into effect immediately. Other changes, such as daybatch sort and select criteria, do not go into effect until a new daybatch is generated.
- *Btmana.exe* – Use *Btmana.exe* to create a daybatch (the *.btd* file) and view real-time information as interviewing is being carried out during the day. Supervisors can also treat cases, including giving them supervisory appointments, by using *Btmana*.
- *Bthist.exe* – The use of *Bthist.exe* is described in section VI above. It is now also a menu selection in the *BTMana* program.
- *Dataview.exe* – Use the database viewer made available through *dataview.exe* to see values stored in the database. Once you have opened up the database viewer for the appropriate *.bdb* file, you can right click with your mouse to bring up a menu of choices. If you chose *Select Fields* from this menu, a database tree appears. Select all the *CatiMana* fields that you want displayed from this structure browser. For example, if you want to see the information stored for the most recent call for each case, double click on *CatiMana.CatiCall.RegCalls[1]*. If you want to know the *JoinID* for a given case (information on the daybatch is presented in *Daybatch/Browse* in *Btmana.exe* only by *JoinId*), select *Display Options...* from the pop-up menus and then check off *Internal Record Number* at the top of the *Environment Options* dialog box.

You can save the fields and options selected in a .dbv file and then bring up this .dbv file instead of having to start each time with a .bdb file and select the desired fields over and over again. You can pre-define several .dbv files for the CATI supervisor.

- Dep.exe - The interviewer uses *Dep.exe* to run in CATI mode.