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Blaise Services At Westat
Technical Notes Publication

Technical Note on Using Time Slices

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 explains time slice concepts and documents how time slices interact with other call scheduler settings. In the following, menu selection choices are in italics. This document supplements material found in chapters 10 and 11 of the Blaise Developer's Guide.

Time Slices Concepts

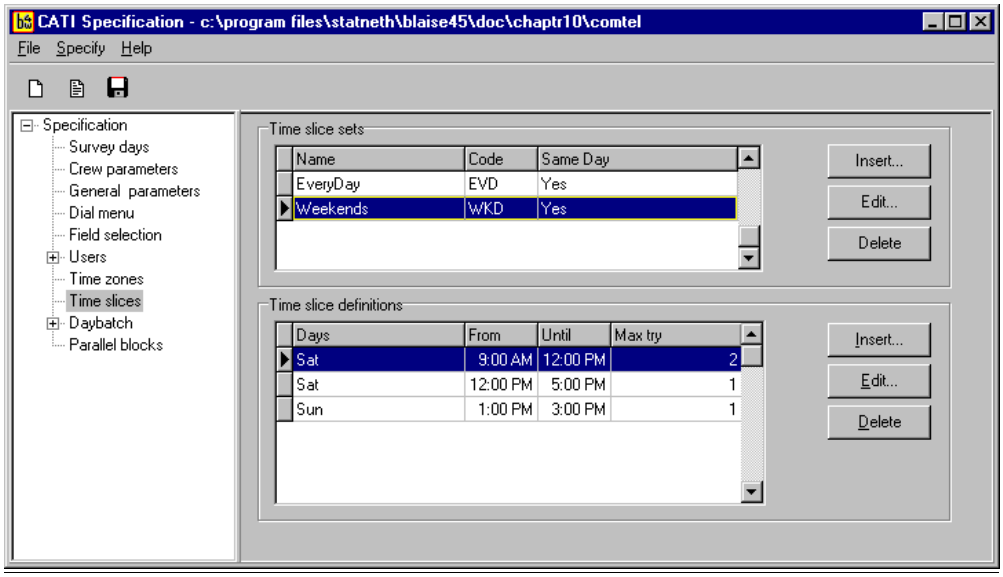
Time slices offer a way to control the re-delivery of default-priority cases. For example, if you call at 2 PM on a weekday and no one answers, there is a good chance that the respondent works during the day and that subsequent attempts should avoid weekday afternoons. All surveys in which you have reason to believe that respondents are more likely to be available and respond to dial attempts at certain times should benefit from the use of time slices. The use of time slices is also advisable if you want to make sure that dial attempts are spread throughout all or parts of the interviewing day or week. Finally, you may wish to consider the use of time slices if you want to make sure that certain times during the week are routinely avoided or tried a very limited number of times for some cases.

Blaise uses the concept of a time slice set. A CATI specification file can have no time slice sets, one time slice set, or more than one time slice set. Each time slice set must be given a name and a unique three-character code. Time slice sets can be defined as once-a-day sets or multiple-times-a-day sets. Each time slice set contains one or more time slice definitions. Each time slice definition includes one or more days of the week, a start time, an end time and a maximum number of tries. Within a given set, the time slice definitions cannot overlap with each other. The mechanics of setting time slices are explained in detail in section 10.4.9 of the Blaise Developer's Guide.

When time slices are applied, each time slice definition is tried only once on any given day irrespective of the number of tries associated with it. If a time slice has 3 tries associated with it, it means that this time slice can be applied on 3 separate days, not that it can be applied 3 times on one day.

In the example shown above, let us define a multiple-times-a-day time slice set for respondents who work weekdays called Weekends that has a code of WKD. We can define three time slices (shown below) for this set as follows:

- Slice 1: Saturdays 9 AM – 12 PM 2 tries
- Slice 2: Saturdays 12 PM – 5 PM 1 try
- Slice 3: Sundays 1 PM – 3 PM 1 try



A case that only receives no answers each time it is dialed can be delivered twice on the first Saturday, once within slice 1 and once within slice 2. It can be delivered once on the first Sunday within slice 3. On the following Saturday, it can be delivered only within slice 1. Once this occurs, the case will never be delivered again since it has exhausted all of its slices. If the Weekends set were a once a day set, delivery of the case would be spread out over an additional Saturday, since multiple tries on the same Saturday would not be allowed.

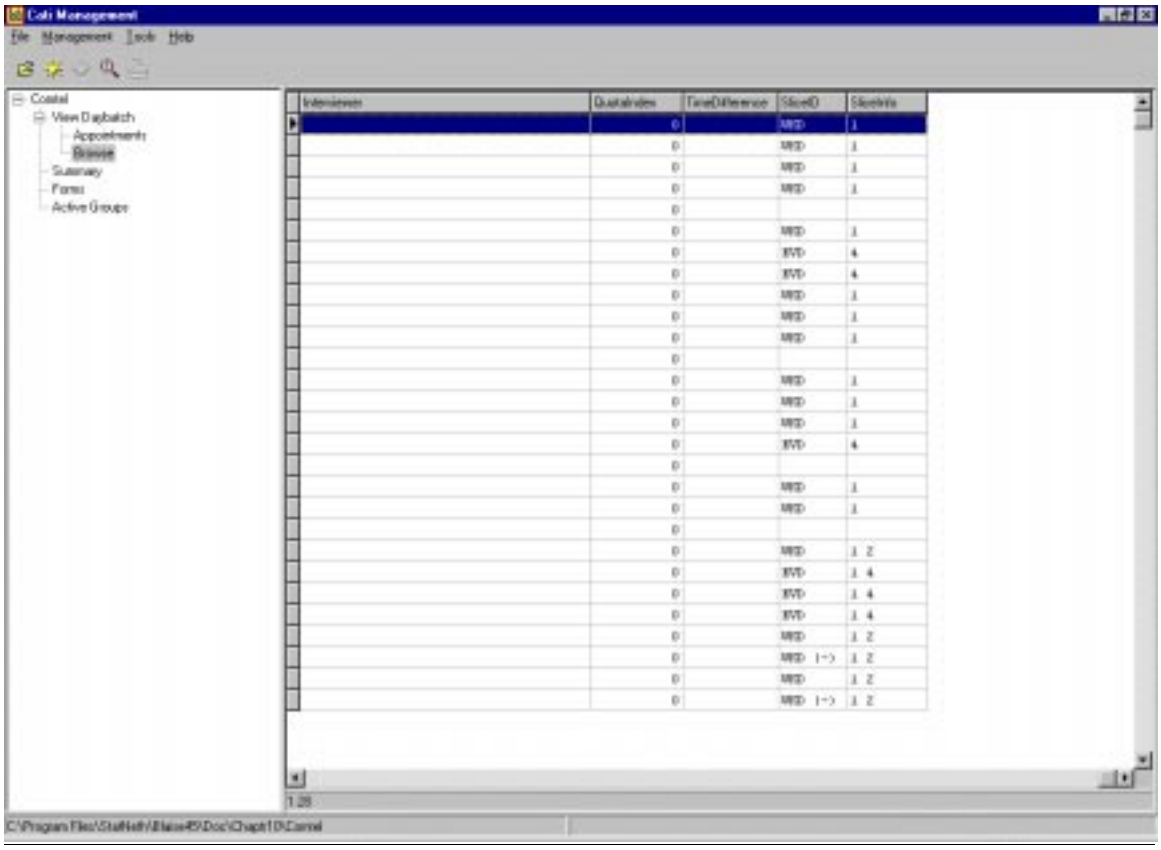
All time slices definitions are assumed to be in respondent time. Blaise automatically adjusts for time zones. Hence, slice 3 above may never be tried in Hawaii, which is 5 time zones further west than Maryland, if the interviewing day on Sundays only goes to 5 PM Maryland time.

Applying Time Slices

Time slices are only referenced when the priority of a case is *default*. In other words, time slices are not relevant when super, hard, medium or soft appointments are pending and/or a busy is being chased. Time slices are also not applied to cases that have never been called. This means that a new case can be delivered for the first time at a time that is different from any of its time slices.

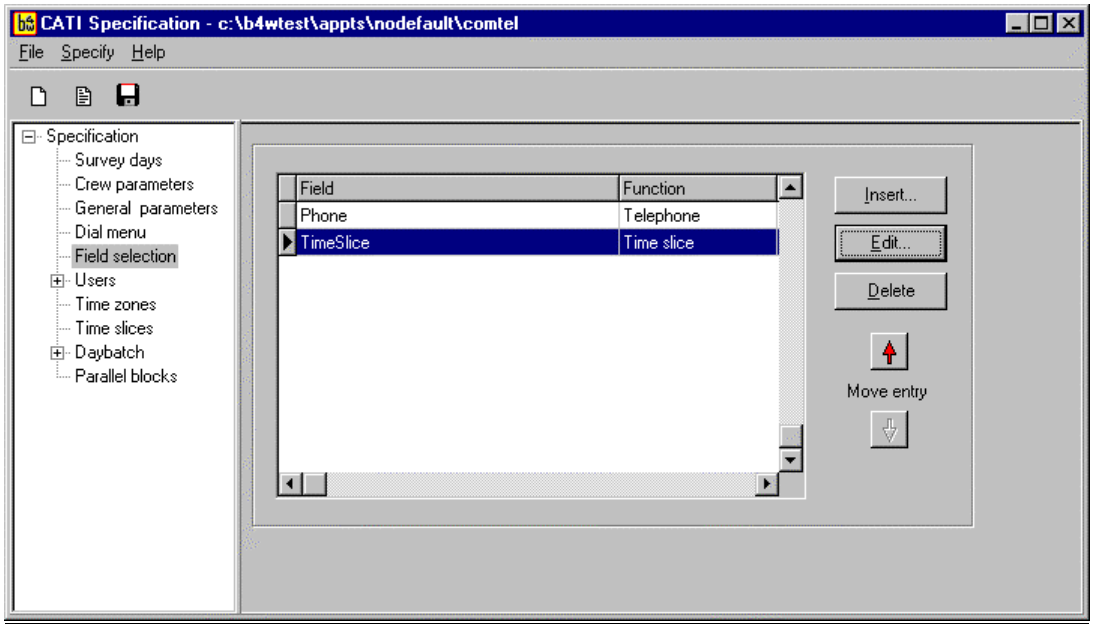
To see the time slice situation of the cases in the current daybatch, start the CATI management program, *BtMana,* and select the *View Daybatch\Browse* branch. The *SliceInfo* column, the last column in the table that appears, shows the potentially relevant time slices for each case. Using our Weekends example, if a case appears on a Saturday with only a number 1 in this column, it means that the 1 try in time slice 2 for this case has already been exhausted. The number of each slice is determined by its order in the specification file. A case may be listed without any time slices because no time slice set applies to it, or it has exhausted all possible time slices for the current day of the week before the current daybatch was made.

The *SliceID* column, the second to last column, shows the value in the time slice field for each case. Time slices are not currently applicable if this code appears with a minus next to it in parentheses. If no minus sign appears next to the code, the times shown in the *StartInterval* and *EndInterval* columns are in accordance with one of the relevant time slice definitions.

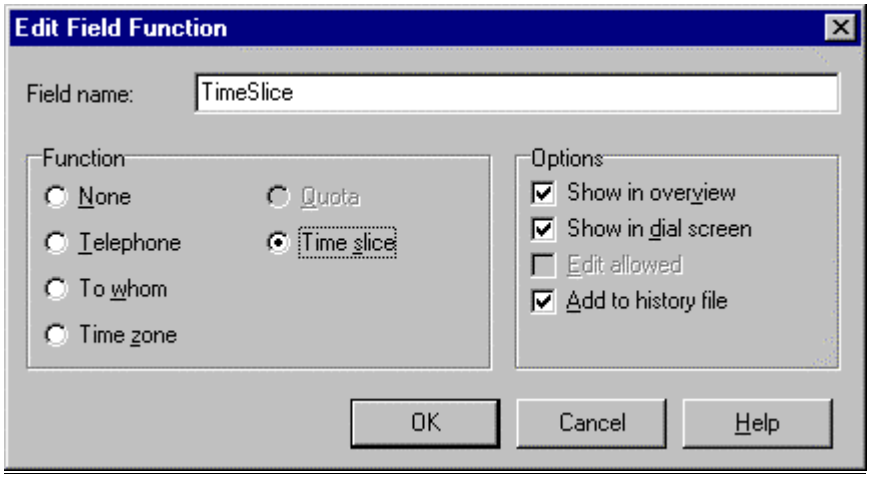


Multiple Time Slice Sets

In some surveys you may want to apply different time slices to different groups of respondents. For example, if you are able to differentiate between working and non-working respondents, you may wish to apply the Weekends time slice set to those who work and the Everyday set to those who do not. Once you decide to use more than one time slice set, you must have a time slice field defined as a three-character string in the associated Blaise instrument. As shown below, you must officially register the chosen time slice field in the *Field Selection* part of the specification file in order for it to be recognized by the Blaise scheduler.



To register the chosen time slice field, go to the *Field Selection* branch and use the *Insert* button to add the time slice field to the table. Use the *Edit* button to give the time slice field time slice functionality. The example below shows the field TimeSlice being given the time slice function. In this example, the options *Show in overview*, *Show in dial screen* and *Add to history file* are also checked. This means that the time slice field is one of the columns shown in BtMana when *Forms* are being viewed. It also means that the value in the time slice field appears on the *Dial Screen* and in the history file.



A value can be entered in the time slice field by Manipula routines or while the data entry program is being run. For a given case, if the time slice field is empty or contains a non-identifiable code, the first time slice set defined in the specification file is automatically applied to the case.

CatiMana.CatiSlices block

As interviewing is occurring, Blaise is automatically storing information dealing with time slices in the *CatiMana.CatiSlices* block for each case. This block contains an array of 32 dial records, one for each of the first 32 dial attempts made for a given case. The first dial record contains the day of the week and the time (in respondent time) of the first dial attempt. The second dial record contains this information for the second dial attempt and so on. The Blaise call scheduler references this array in order to determine if and how many times a time slice has been tried. Because the CatiSlices block contains only 32 records, you do not want to define a time slice set with more than about 25 available slices. The number 25 is suggested here as a ballpark figure because the first call and any calls related to explicit appointment times also take up space in the *CatiSlices* array, thereby reducing the number of slots where actual time slice attempts can be recorded. You can see the information stored in the *CatiMana.CatiSlices* array for each case by using the Database Viewer.

If you succeed in contacting a case and making an appointment, the day and time of this dial attempt is recorded in the *CatiSlices* block. This counts as one try in this time slice. If only one try is permitted in this time slice, barring an explicit appointment, it will never be tried again even though this was a time slice in which someone has actually been contacted.

Interaction Between Time Slices and the Minimum Time Between Other No Answer Calls

The *Minimum time between other no answer* is one of the parameters set in the specification file for each survey. When you are not using time slices, you want to set this parameter equal to an interval that makes sure that calls are not spaced too closely together. For example, by setting this parameter to 120 minutes, although you cannot keep a case from being delivered at 9 AM everyday (the way you can if you use time slices), you can guarantee that if it receives a no answer at 9 AM, it will not be delivered again until 11 AM at the earliest.

When you use time slices, be aware that this minimum time setting may get in the way of your use of time slices. This happens because once a time slice-applicable case receives a no answer, the scheduler looks to see if there is another time slice available for delivery later in the day. If any part of the next available time slice is not more than the minimum number of minutes away from the existing no answer, the scheduler automatically eliminates the entire time slice as a possibility. As an example using the weekend slice set, if a time slice-applicable case receives a no answer at 11:45 AM on Saturday and the minimum time between other no answer calls is set at 30 minutes, it cannot be scheduled to be called during the 12 PM to 5 PM time slice.

Interaction Between Time Slices and the Maximum Number of Dials

The maximum number of dials that limits the number of times a case can be tried on a given day must be set in the specification file. The scheduler does not continue to deliver a case during an interviewing day

if the maximum number of dials has been reached unless a new appointment for the same day was made earlier in the day. Consecutive busy dials are aggregated together, up to the limit set for maximum number of busy dials in the specification file, to form one dial.

The value that you select for the maximum number of dials places an upper limit on the number of time slices that can be tried in a given day. If you have defined 4 different time slices for a given day of the week, but have the maximum number of dials set at 2 in a default-priority situation, no more than 2 of these time slices can be tried. Setting the maximum number of dials to 1 has the same effect as specifying only one time slice try per day.

If you are using the value in the maximum number of dials combined with a relatively small daybatch to try to make sure once cases are in the daybatch they are tried frequently, the number of time slice definitions should be at least as great as the maximum number of dials. For example, the maximum limit of 4 dials cannot be honored on a given day if time slices are being applied and only 2 time slices are available for the specific day.

Interaction Between Time Slices and the Maximum Number of Calls

You need to provide an upper limit for the number of calls in the specification file. Normally all the dial attempts occurring on one day are seen by Blaise as constituting one call. However, if an appointment is made for a specific time later the same day, all the dial attempts leading up to the appointment are considered to be one call and all the dial attempts involved in chasing the appointment are considered to be another call.

The scheduler stops placing cases, except those with a pending appointment, in the daybatch once they have had the maximum number of calls. The scheduler also stops placing time slice-applicable cases in the daybatch when they have exhausted all of their time slices. Hence, if the maximum number of calls is less than the total number of available time slices, you may close out a case before exhausting all of its time slices. Alternatively, if the number of available time slices is less than the maximum number of calls, you may close out a case before the maximum number of calls is reached. This means that you should be careful to choose a value for the maximum number of calls that is compatible with the number of available time slices.

Changing Time Slice-Related Information

Before making the daybatch, you can alter the specification file by adding, deleting or modifying time slice sets or by changing the value of the time slice field. When you make the daybatch, the Blaise scheduler references the current specification file and the *CatiSlices* block to determine the available time slices for each case.

While interviewing is taking place, you can modify the *Allow slices to be tried on same day* or the *Maximum dials allowed* settings in the specification file and your changes will take effect immediately. However, if you try to add, delete or modify any other component of a time slice set while interviewing is occurring, time slices are disabled for the rest of the day as long as the daybatch is not recreated. You can see that this is indeed the case by selecting *View Daybatch\Browse* in BtMana and noticing that the *SliceID* and *SliceInfo* columns are completely blanked out.

If you want to discontinue the use of time slices, you must not only remove time slice functionality from the field selection section of the specification file, but you must also delete all time slice sets.

It is worth noting that there are many reasons why you may wish to consider modifying time slice sets during the life of a survey. For example, at the beginning of the survey you may want to spread call attempts out relatively evenly over all the cases. To facilitate this, you can define a small number of time slices, each of which includes a sizeable chunk of time. At the end of the survey, if there are very few cases left, you may want to create a large number of time slices that cover small periods of time. In this way, the same case can be tried multiple times each day, provided of course that the maximum number of dials is large enough to accommodate the number of individual time slice definitions.

How to Test which Time Slice Sets are Worth Using

When used judiciously, time slices minimize the number of non-contact dial attempts or maximize the number of dial attempts that result in a completed questionnaire. There are many ways that you can test the efficacy of various time slice sets. One of these ways is described below.

Assume that you want to test the efficacy of three different time slice sets, TS1, TS2, and TS3. Describe each of these sets in the specification file. Create a time slice field in the relevant data model, and give this field time slice functionality in the specification file. Run a Manipula program that randomly assigns one-fourth of the cases to TS2, one-fourth to TS2, one-fourth to TS3 and one-fourth to no time slice set.

Carry out your interviewing operation for a period of time. At the end of this period, run a Manipula program that goes through the database and counts the number of cases that have been recorded as completed during the test period. If the total number of completed cases is significantly higher for one of the time slice sets, you have some evidence that this set is more desirable than the others. If the performance with any of the time slice sets is not significantly better than with no time slice set, you may not wish to bother using time slices, or alternatively you may wish to test different time slice sets.