

Using Logs to Reduce Anxiety

Anxiety Logs for Immediate Therapeutic Options

Summary

Anxiety Logs, or thought records, are a method of cognitive restructuring. Clients write about the situation surrounding their anxiety event, their thoughts about that situation, and the level of anxiety they are feeling at the time. Later, the client may challenge those distorted thoughts to produce more realistic thoughts or outcomes. TAO has released a mobile app that puts these therapeutic logs at clients' fingertips.

Key Findings:

- Completing anxiety logs is correlated with improvement on BHM-20[®] wellness measures.
- Up to half of anxiety events occur outside of normal business hours.
- Completing a log immediately reduces average reported anxiety by up to 38%.

TAO's logs are now available via TAO Mobile, TAO's mobile app for iOS[®] and Android[™].

Introduction

There is consistent evidence that cognitive therapy can be used to treat clients with mild to moderate depression or anxiety (Beck, 1979; Otto, Smits & Reese, 2004; Rupke, Blecke & Renfrow, 2006). There is also evidence to suggest that both the quantity and quality of therapeutic skills that a client uses outside of the therapy session predicts treatment outcome (Hundt, Mignogna, Underhill, & Cully, 2013; Kazantzis et al., 2017; Neimeyer & Feixas, 2016). In one study of the effect of therapeutic homework on client outcomes, the number of thought records was the only significant component predicting lower levels of anxiety (Rees, McEvoy, & Nathan, 2005). The quality of the clients' thought records was not significantly related to their outcomes and the authors suggest that thought records can be therapeutic even if not completed entirely accurately.

We have previously shown that TAO's logs are beneficial to clients' progress (see: *TAO-Related Improvement*, 2017). Clients who use logs show more improvement in their mental health than their peers who do not complete logs; the more logs a client uses, the more improvement they show, especially in global mental health, wellbeing, and anxiety. In this white paper, we will explore the logs individually.

TAO's Options

Anxiety Logs:

TAO offers four Client Logs to be used with the Anxiety Treatments:

- **Anxiety Monitoring Log**
- **Challenge Log**
- **Exposure Log**
- **Relaxation Log**

These four logs are designed to collect different types of information, but each one is used to assess a client's anxiety and help them identify the best methods of coping with that anxiety.

Overview of Data

Data was collected between October 2014 and July 2017 with a total of X clients over the three years. Analyses for this report are mainly descriptive, but offer key insights into how clients interact with logs online and how these logs affect their wellbeing, particularly their anxiety levels.

It is tempting to compare clients' improvement across the logs, but these comparisons are unlikely to be helpful due to multicollinearity – that is, most clients completed more than one kind of log. Instead, we will analyze each log individually to understand the context in which that log is most useful.

The Anxiety Monitoring, Challenge, and Relaxation Logs have each been completed over

1,000 times by between 274-873 separate clients. Most clients complete more than one log, a mean of about four logs each. Clients also tend to complete more than one type of log, which can be beneficial to their treatment by targeting different issues and providing various coping strategies. By reviewing their collected logs with their therapist, a client can get a deeper understanding of their anxiety events and personalized methods of coping with their anxiety.

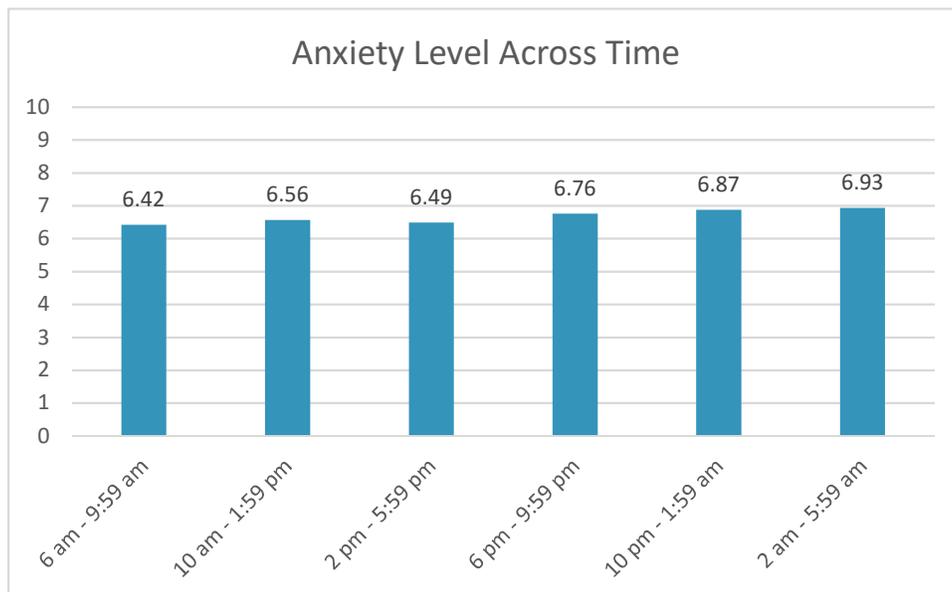
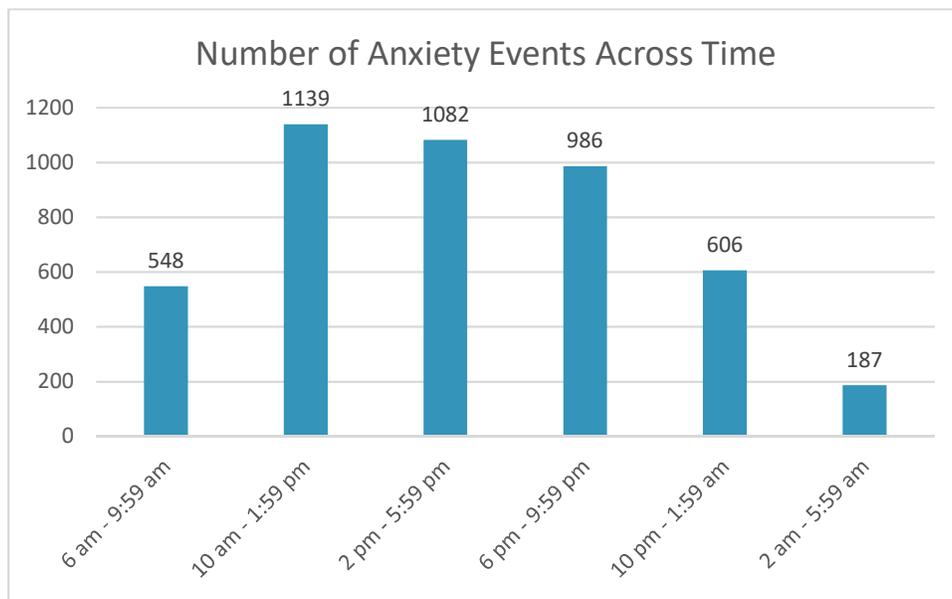
Summary of Log Usage

| | Average Responses | Maximum Responses | Minimum Responses | Total Responses | Total Clients |
|------------------------|-------------------|-------------------|-------------------|-----------------|---------------|
| Anxiety Monitoring Log | 3.86 | 43 | 1 | 3,393 | 873 |
| Challenge Log | 3.68 | 43 | 1 | 1,009 | 274 |
| Relaxation Log | 4.44 | 127 | 1 | 1,925 | 434 |
| Exposure Log | 2.23 | 23 | 1 | 252 | 113 |

Anxiety Monitoring Log:

Anxiety Monitoring, the most popular log, asks for the date and time of the anxiety event, the level of anxiety from 1-10, and for descriptions of the situation, worries, and possible triggers. Finally, clients are asked to describe their behaviors in response to their anxiety event as well as the outcome of the event.

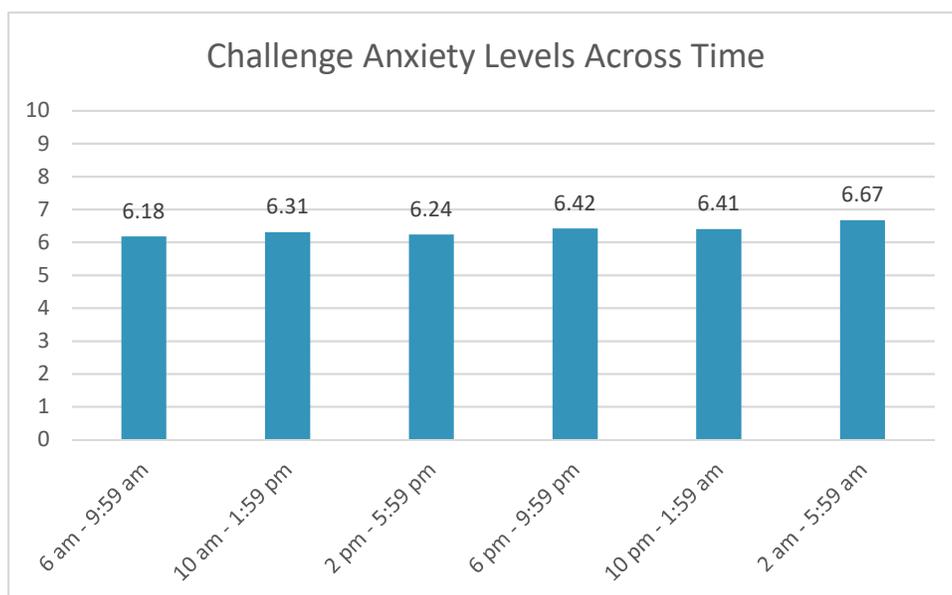
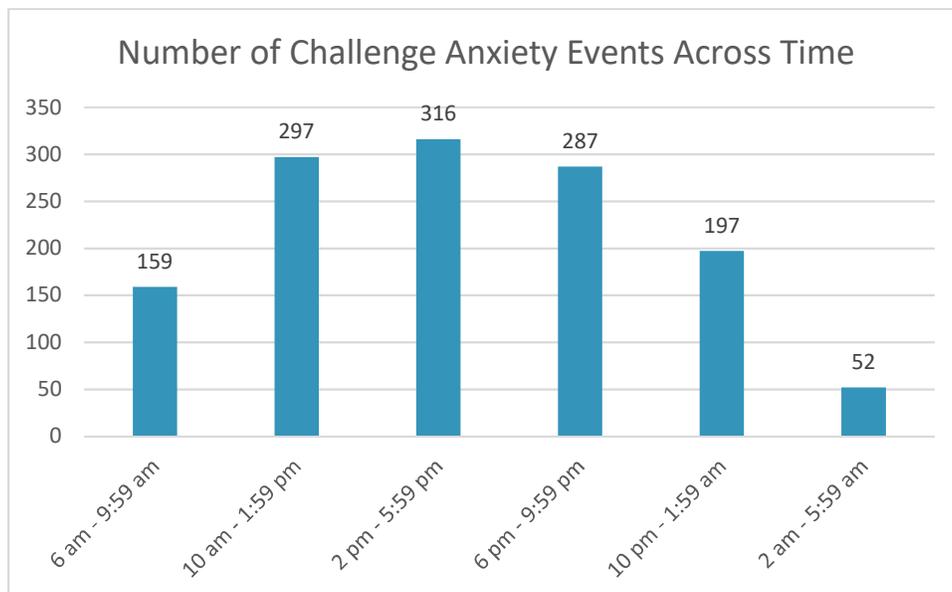
Roughly grouping time of anxiety events into “business hours” (10am-5:59pm) and “outside of business hours” (6pm-9:59am) results in about equal numbers of anxiety events. That is, about 51% of anxiety events occur between 6pm and 9:59am when the counseling center may not be open and the therapist may not be available.



Challenge Logs:

The Challenge Log matches the Anxiety Monitoring Log with two added components. Clients select unhealthy assumptions and core beliefs that were present and then challenge the assumptions and think of an alternate view of the situation. Therapists and clients therefore get more individualized information about anxiety events work more directly on the clients' specific worries and thought patterns.

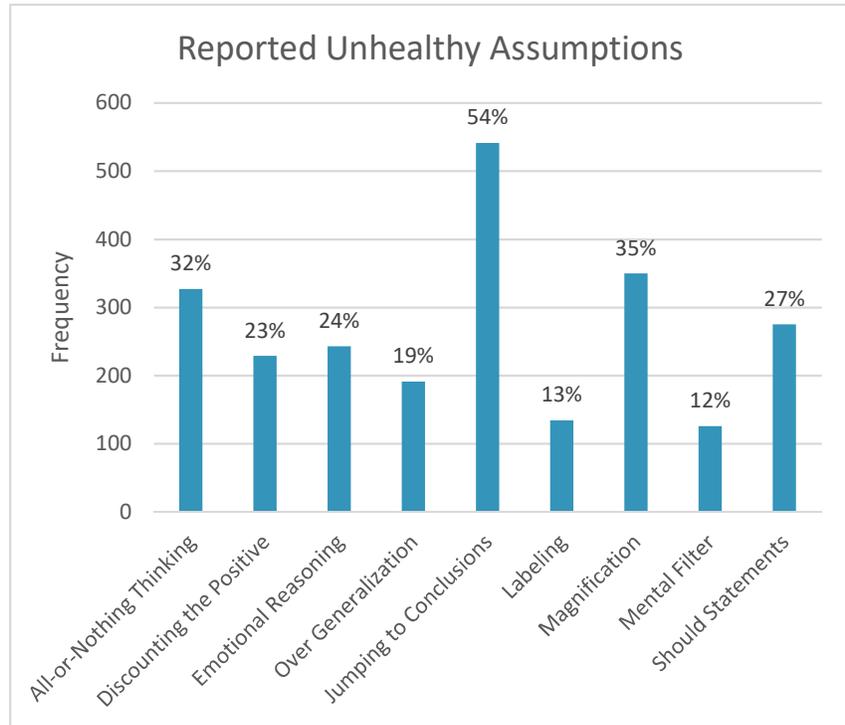
We see again that 53% of challenge anxiety events occur between 6pm and 10am, but mean levels of anxiety do not significantly differ. Clients' anxiety can occur just as frequently and with the same severity when the office is closed. During these hours, clients will want to have therapeutic options available to them.



Challenge logs also ask clients to report and challenge their unhealthy assumptions and core beliefs. Over time, clients and therapists can see the most common assumptions and core beliefs. This gives them power to target these assumptions and core beliefs that are most problematic for the client individually and directly.

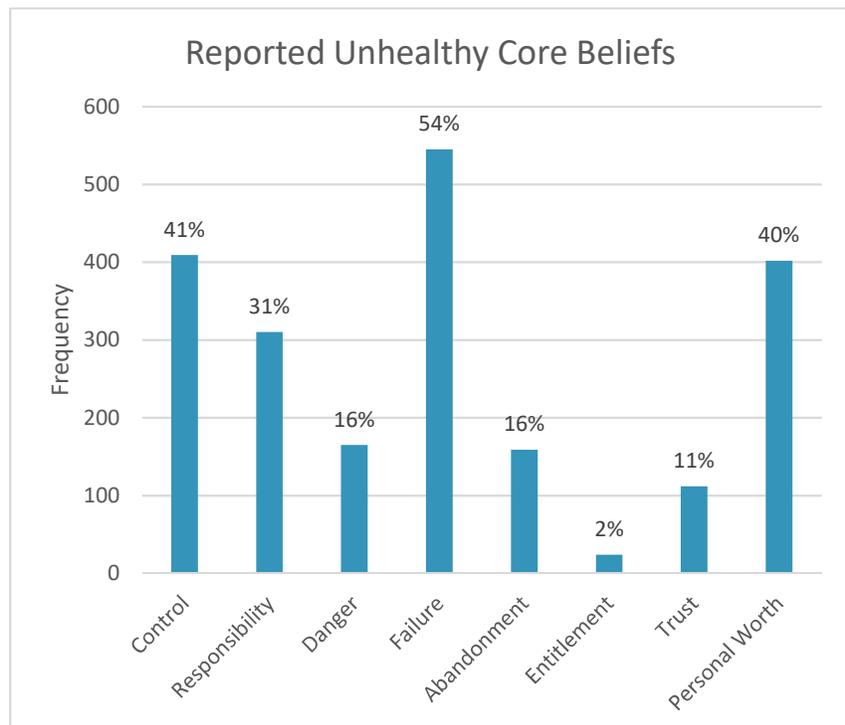
Unhealthy Assumptions

Across 1,009 Challenge Log entries, the most frequently reported unhealthy assumptions are jumping to conclusions (54% of logs), magnification (35%), all-or-nothing thinking (33%), and should statements (28%).



Unhealthy Core Beliefs

Across 1,009 Challenge Log entries, the most frequently reported unhealthy core beliefs are failure (54%), control (41%), personal worth (40%), and responsibility (31%).



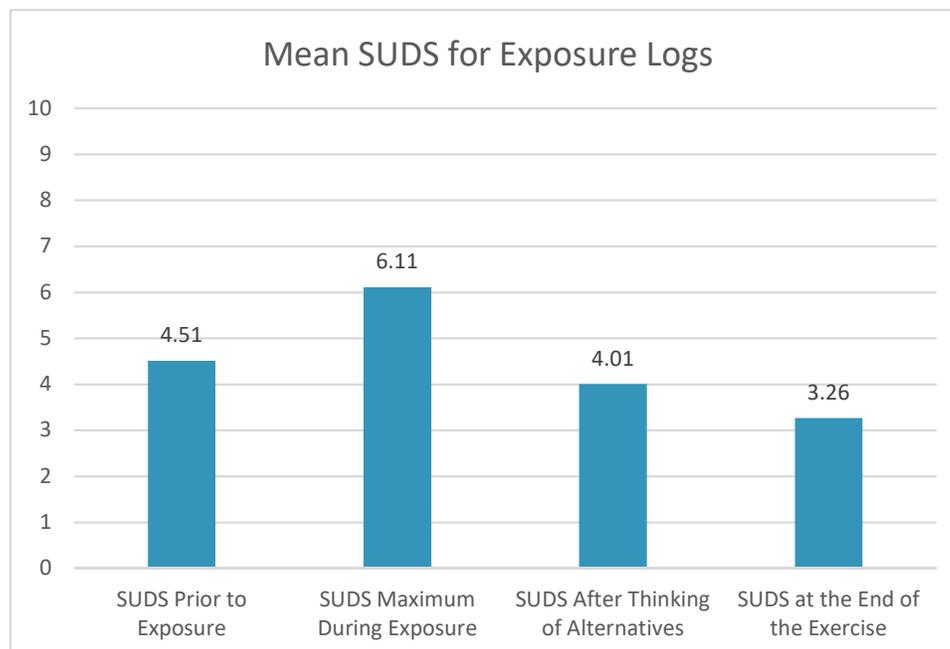
Exposure Logs:

The Exposure Log asks clients to deal with a certain event by thinking of the worst possible outcome, thinking of an alternative outcome, and rating their anxiety at several timepoints during the activity. Anxiety is measured using the Subjective Units of Distress Scale (SUDS) which asks for a subjective rating of anxiety from 0-10.

A multilevel model was conducted using only clients' first Exposure Log entries regardless of whether they completed more than one log. A baseline model (reported anxiety predicted by overall mean anxiety) was compared to a predictive model (reported anxiety predicted by the factor of SUDS over time). Reported anxiety was significantly different across the four timepoints, $\chi^2(3) = 254.33, p < .001$. Post-hoc analyses revealed that SUDS during

exposure was significantly higher than prior to exposure ($p < .001$). SUDS after exposure was significantly lower than prior to exposure ($p = .02$) and during exposure ($p < .001$). SUDS at the end of the exercise was significantly lower than prior to exposure, during exposure, and after exposure ($ps < .001$).

Of these significant differences, it is most useful to know that anxiety is significantly reduced from maximum SUDS during the exposure as well as from SUDS prior to the exercise. From maximum SUDS to SUDS at the end of the exercise, clients show about a 47% reduction in their anxiety. Comparing SUDS prior to and at the end of the exercise, clients show about 28% reduction in their anxiety. Simply completing the log allowed clients to immediately reduce their anxiety.



Relaxation Logs:

The Relaxation Log consists of four separate relaxation activities including mindfulness meditation. Clients log their thoughts and rate their anxiety level before completing the activity, then rate their anxiety level afterwards.

Paired samples t-tests were conducted on 30 responses randomly

selected from clients' first responses to any of the relaxation techniques. Clients usually complete more than one of the relaxation techniques, so these tests should not be considered independent of one another. Across all relaxation exercises, TAO clients show about a 38% reduction in mean anxiety levels from before to after the relaxation exercise.

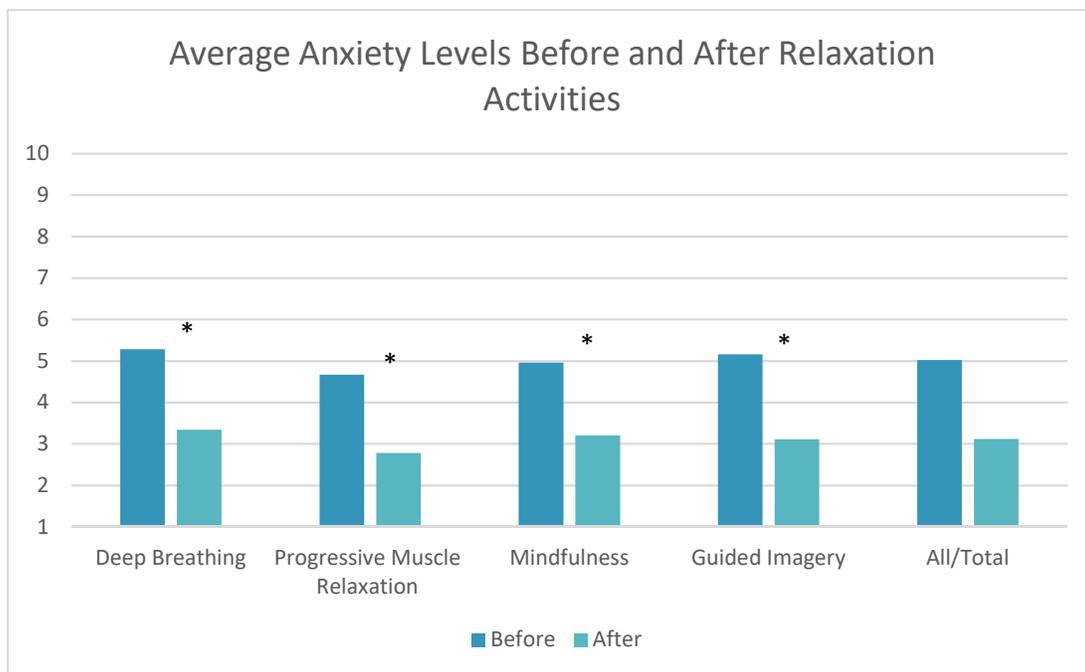


Figure 1. *Random sample suggests significantly different means at $p < .001$.

| Relaxation Techniques | | | | |
|--------------------------------------|----------------------|----------------------|---------------------|--------------------------|
| | Number of Times Used | Anxiety Level Before | Anxiety Level After | t-test |
| Deep Breathing | 672 | 5.28 | 3.34 | $t(29) = 8.23, p < .001$ |
| Progressive Muscle Relaxation | 532 | 4.67 | 2.78 | $t(29) = 6.17, p < .001$ |
| Mindfulness | 370 | 4.96 | 3.20 | $t(29) = 6.46, p < .001$ |
| Guided Imagery | 278 | 5.16 | 3.11 | $t(29) = 8.24, p < .001$ |

Conclusion

We know that there are correlations between number of logs completed and improvement in BHM-20® wellness measures. Clients complete an average of 3-4 logs and are completing more than one type of log. In the Anxiety Monitoring and Challenge Logs, reported time of anxiety events showed that, on average, clients have as many anxiety events outside of normal business hours as they do during business hours. TAO is particularly useful for clients and therapists outside of business hours because it provides support and allows the client to work on their learned therapeutic skills on their own.

Clients report less anxiety immediately after completing a log than immediately before the log was completed as seen in the responses to the Relaxation and Exposure logs. Completing a single log can instantly reduce a client's anxiety by as much as 38%. Therefore, therapists and clients may find the anxiety logs particularly useful as a short-term solution for anxiety until the client's next session or when the therapist is next available. Logs are now available on TAO's mobile app, making them even more accessible to TAO clients.

While logs are not the only homework that can be provided by the therapist for treatment of anxiety or depression, the findings presented in this paper mirror

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previous research showing the efficacy of homework to improve client wellbeing. It has been shown that the quality of the homework completed influences outcomes (Neimeyer & Feixas, 2016). However, in a previously discussed study, the quality of the clients' thought records was not significantly related to their outcomes and these authors suggested that thought records can be therapeutic even if not completed entirely accurately (Rees, McEvoy, & Nathan, 2005). In TAO, logs can be monitored by the therapist, and the quality of clients' entries can be adjusted when necessary.

Learn more about TAO Connect at:

<http://www.taoconnect.org/>

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