



Survey Comparison: DMDC's 2015 Survey of Active Duty Spouses and Blue Star Families' 2015 Military Family Lifestyle Survey

Introduction and Approach

In 2015, the Department of Defense's (DoD) Defense Manpower Data Center (DMDC) administered its recurring *Survey of Active Duty Spouses (ADSS)*.¹ The *2015 ADSS* covers a range of topics (e.g., financial well-being, overall health, life in the military, spouse unemployment, and use of military-provided resources) that affect active duty spouses and their families. In November 2015, DMDC released the tabulated results of the *2015 ADSS* (DMDC, 2015b).

Previously, Blue Star Families released the results for a survey it conducts in partnership with Syracuse University's Institute for Veterans and Military Families (IVMF): the *2015 Military Family Lifestyle Survey (2015 MFLS)*. The *MFLS* has been administered annually since 2009 and is intended to provide an "understanding of the experiences and challenges encountered by military families" (p. 4).

Given the similar populations of DMDC's *2015 ADSS* and Blue Star Families' *2015 MFLS*, the purpose of this survey note is to provide a comparison of the findings and methodology of the two surveys. Due to differences in the surveys' sampling strategies and methodologies, DMDC cannot directly make statistical comparisons between the results from the two surveys. As such, caution should be taken when comparing the results. Descriptive comparisons of findings are provided where comparable groups and estimates were reported or could be computed across the two surveys. This survey note presents the results of this review.

Several findings were found to be similar across the two surveys (e.g., the employment rate, top career fields, self-employment rates, licensure/certification requirements, and reasons for not working); however, some important differences emerged, including the spouse unemployment rate, desire to work and educational enrollment among unemployed spouses, and spouses' use of financial resources. Although both surveys provide insights into the experiences of military families, only findings from the *2015 ADSS* can be accurately generalized to the active duty spouse population as a whole.

Comparison of Sample and Methodology

The *2015 ADSS* and *2015 MFLS* differ in many important ways, including survey administration, sampling methodologies, weighting, design, and populations. Figure 1 provides a comparison of the samples and methodologies employed in the *2015 ADSS* and *2015 MFLS*. The key differences are discussed below.

¹ The *2015 ADSS* continues a line of research on active duty spouses that began with the *1985 DoD Surveys of Officer and Enlisted Personnel and Military Spouses*. Its purpose is to provide an understanding of the characteristics, experiences, and perceptions of the active duty spouse population.

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Figure 1.
Comparison of Sample and Methodology

	2015 ADSS	2015 MFLS
Sampling Method	Scientific probability sample including active duty spouses (<i>n</i> = 9,813), weighted up to a population of 680,395 (initial sample size = 44,921 ^a)	Convenience sample including Active duty and Reserve spouses (<i>n</i> = 2,799), Service members or veterans (<i>n</i> = 2,555), and other family members (<i>n</i> = 577)
Target Population(s)	Active duty spouses	Active duty and Reserve spouses, Service members or veterans, and other family members
Sampling Strategy	DoD-wide sampling frame drawn from multiple DMDC data sources ^b	Recruitment through national military and veteran service organizations
Administration Mode	Web and paper	Web only
Identity Validation Method	Unique survey code for each potential respondent	None
Case Independence	All estimates computed from independent cases	Some estimates may be computed from non-independent cases
Fielding Dates	12/30/14–5/15/15	4/15/15–5/20/15
Weighting	Estimates weighted to represent active duty military spouse population	Estimates may not be representative of military spouse population

^aDMDC uses known population characteristics, expected response rates from prior surveys, and an optimization algorithm for determining sample sizes needed to achieve desired precision levels. Overall, the sample size was designed to ensure there are enough respondents who submit completed surveys in order to make generalizations to the full active duty spouse population (DMDC, 2015a).

^bThe sample frame was constructed from DMDC's July 2014 *Active Duty Master Edit File*, July 2014 *Family Database*, July 2014 *Contingency Tracking System File (CTS)*, July 2014 *Basic Allowance for Housing Population File*, and August 2014 *Defense Enrollment Eligibility Reporting System (DEERS) Medical Point-in-Time Extract (PITE)*. DMDC has access to the largest repository of military and DoD civilian personnel data, which allows for better sampling and statistical weighting techniques (DMDC, 2015b).

A noteworthy difference between the two surveys is their sampling and weighting strategies. The *2015 MFLS* used a convenience sample, a nonprobability sampling method that may provide information that can be used to help identify issues or topics for further study, but does not conform to survey industry standards because it lacks a theoretical basis for the sample design.² Additionally, as the *2015 MFLS* used a convenience sample, the data cannot be weighted and therefore cannot be generalized to the full military spouse population due to potential selection bias. Indeed, the *2015 MFLS Comprehensive Report* notes that “Possible biases, introduced through the utilization of a non-probability sampling method, include over- or under-representation, which means that this sample cannot necessarily be considered a direct representation of the entire military family population” (p.

² According to a report published by the American Association of Public Opinion Research (AAPOR), “A key feature of statistical inference is that it requires some theoretical basis and explicit set of assumptions for making the estimates and for judging the accuracy of those estimates. We consider methods for collecting data and producing estimates without a theoretical basis as not being appropriate for making statistical inferences” (Baker et al., 2013, p. 91).

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62). In contrast, the 2015 ADSS was a DoD-wide survey that followed survey industry standards by using a scientific probability sample, where all members of the population of interest have a known probability of being included in the sample.³ Additionally, as the 2015 ADSS used probability sampling and the data were weighted up to the full active duty spouse population. Point estimates (e.g., proportions, means) for the 2015 ADSS are representative of the active duty military spouse population.⁴

Another difference is that, whereas all 2015 ADSS point estimates are computed from independent cases (i.e., the sample includes only one respondent—the spouse—per military family, with a unique ID provided to each spouse), some estimates in the 2015 MFLS may have been computed from non-independent cases. That is, multiple respondents per family (e.g., Service member and his or her spouse) may be contributing ratings or data points to each estimate (e.g., family financial readiness). To the extent that this non-independence occurs, the effective sample size and reliability of estimates for the 2015 MFLS may be reduced. Also, any selection bias that is already in 2015 MFLS estimates due to use of a convenience sample may be compounded.

A related issue is that, due to the inclusion of multiple spouse subpopulations in the 2015 MFLS (e.g., veteran spouses), some of its findings for military spouses overall may not be directly comparable to findings from the 2015 ADSS, which only included active duty spouses. Given these comparability challenges, this survey note only reports and provides comparable 2015 ADSS estimates for findings that the 2015 MFLS Comprehensive Report specifically noted were for *active duty spouses*.

Because of the methodological differences noted above, caution must be taken when comparing the results between the 2015 ADSS and the 2015 MFLS.

Comparison of Findings

The 2015 ADSS contained numerous results for the active duty spouse subpopulation. For many of these findings, comparable 2015 MFLS Comprehensive Report results were also available, although in some cases only “proxy” 2015 MFLS results could be found (e.g., for 2015 MFLS items that had similar, but not identical, content or format as the reported 2015 ADSS findings). This survey note presents these comparisons.⁵

³ DMDC's survey methodology meets survey industry standards that are used by government statistical agencies (e.g., the Census Bureau and Bureau of Labor Statistics), private survey organizations, and well-known polling organizations. DMDC adheres to the survey methodology best practices promoted by the AAPOR. AAPOR's “Best Practices for Research” state that, “Virtually all surveys taken seriously by social scientists, policy makers, and the informed media use some form of *random or probability sampling*, the methods of which are well grounded in statistical theory and the theory of probability” (“Best Practices for Research,” n.d.). DMDC has conducted surveys of the military and DoD community using stratified random sampling for over 25 years.

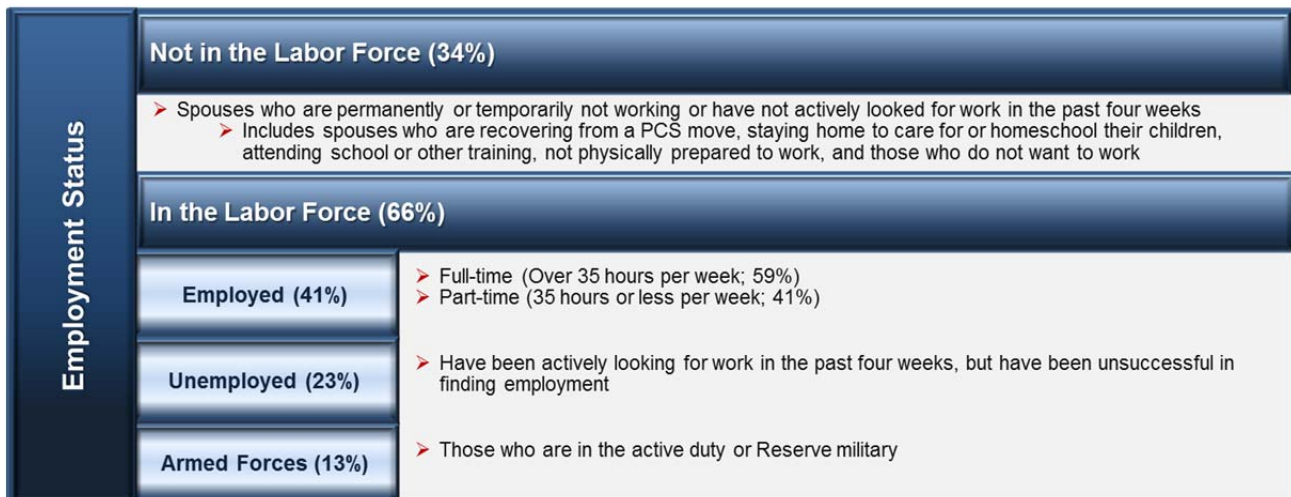
⁴ For more information on the sampling design and weighting methods used in the 2015 ADSS, see the 2015 Survey of Active Duty Spouses Statistical Methodology Report (DMDC, 2015a).

⁵ 2015 MFLS estimates do not include “Does not apply” or “Prefer not to answer” responses in the denominator of proportions. Relevant 2015 ADSS estimates generally follow the same rule, but exceptions are noted (comparisons to MFLS estimates may not be advisable in these cases).

Spouse Employment and Unemployment Rates

As shown in Figure 2, the information on spouse employment for the 2015 ADSS falls into two broad categories: **Not in the Labor Force** and **In the Labor Force**. Those not in the labor force includes spouses who are permanently or temporarily not working or not actively looking for work. Those in the labor force are spouses who are in the labor market and includes **Employed**, **Unemployed**, and in the **Armed Forces**. These spouse employment indicators are comparable to employment measures used in the U.S. Census Bureau's *Decennial Census and Current Population Survey (CPS)*; U.S. Bureau of Labor Statistics & U.S. Census Bureau, 2002). More than one-third (34%) of active duty spouses indicated they were not in the labor force, while two-thirds (66%) indicated they were in the labor force. Looking at the more granular categories of spouses in the labor force, 41% of spouses overall indicated they were employed, 23% indicated they were unemployed, and 13% indicated they were in the Armed Forces.

Figure 2.
2015 ADSS Spouse Employment Status



Margins of error are $\pm 2\%$

Note. All proportions shown in Figure 2 are calculated of active duty spouses overall, except the 23% unemployment rate. This rate is calculated of spouses in the labor force (excluding spouses of warrant officers and dual military spouses) and follows Bureau of Labor Statistics' standards for calculating the unemployment rate.

Figure 3 provides a comparison of the spouse employment and unemployment rates across the two surveys. Overall, the comparable rates reported in each survey are similar. In both surveys, less than half (41% for 2015 ADSS and 45% for 2015 MFLS) of active duty spouses were employed, with about three in five employed spouses reporting that they work full-time (59% for 2015 ADSS and 63% for 2015 MFLS). Similarly, roughly half of active duty spouses reported that they are not employed,⁶

⁶ The 2015 ADSS estimate reported here of spouses who are not employed was recalculated as a percentage of spouses overall so there was comparability between the two surveys. This is in contrast to the unemployment rate reported in Figure 2, which is calculated of spouses in the labor force (excluding spouses of warrant officers and dual military spouses) and follows Bureau of Labor Statistics' standards for calculating the unemployment rate.

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slightly less than half (46%) in the 2015 ADSS and slightly more (55%) in the 2015 MFLS. In the 2015 ADSS (but not the 2015 MFLS), these spouses reported that they are not employed either because they have been looking for but unable to find work (unemployed), or have not been looking for work in the past four weeks (not in the labor force).

Figure 3.
Comparison of Active Duty Spouse Employment and Unemployment Rates

	2015 ADSS	2015 MFLS
Employment Rate^a	41%	45%
Part-time (≤ 35 hours/week)	41%	37%
Full-time (≥ 36 hours/week)	59%	63%
Not employed^b	46%	55% ^b
Unemployed	12%	Not reported
Not in the labor force	34%	Not reported

^aEmployment rates were taken from the following items/pages: 2015 ADSS (Q22-24, Q26) and 2015 MFLS (p. 34). Estimates for part-time and full-time employment are percentages of employed spouses and were taken from the following items/pages: 2015 ADSS (Q31) and 2015 MFLS (p. 34). An additional 13% of spouses in the 2015 ADSS were dual military (Q22-24, Q26); they are not included in the employment rate reported in this figure.

^bThe ADSS estimates of unemployed spouses and those not in the labor force, as well as the MFLS estimate of spouses who are not employed, were taken from the following items/pages: 2015 ADSS (Q22-24, Q26) and 2015 MFLS (p. 34). The estimate of unemployed spouses reported here was calculated as a percentage of spouses overall, in contrast to the unemployment rate reported in Figure 2 and in the text below, which was calculated as a percentage of spouses who are in the labor force.

The overall employment estimates among active duty spouses are similar between the two surveys, although it is unknown whether dual military spouses were included in the 2015 MFLS employment rate. However, the two surveys' estimates of the unemployment rate diverge due to different estimation methods. As noted above, the 2015 ADSS uses CPS labor force items and conforms to the Bureau of Labor Statistics' standards in estimating the unemployment rate as the proportion of unemployed spouses among those who are in the labor force. For instance, some spouses may not be in the labor force because they are recovering from a PCS move or staying home to care for or homeschool their children; these spouses would not be counted in the unemployment rate statistic. Accordingly, the 2015 ADSS estimates a 23% spouse unemployment rate (Q22-24, Q26).⁷ By contrast, the 2015 MFLS Comprehensive Report reports the rate of spouses who are not employed (55%) as the simple residual of the employment rate (45%). It is noteworthy that the 2015 MFLS rate of spouses who are not employed (55%) is somewhat similar to the sum of two relevant ADSS rates (46%):

⁷ This 23% unemployment rate excludes spouses of warrant officers and dual military spouses.

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unemployed spouses and those not in the labor force (i.e., those not currently looking for employment or needing/wanting to work). However, the official unemployment rate of 23% (Figure 2) estimated in the 2015 ADSS according to the Bureau of Labor Statistics’ standards was much lower than the 2015 MFLS estimated rate of spouses who are not employed (55%). Given the potential policy implications of the spouse unemployment rate (e.g., allocating funding to employment programs and services), the differences between the two surveys in definitions and findings for unemployment are important to note when considering the 2015 MFLS and 2015 ADSS results.

Spouse Employment Characteristics

The 2015 ADSS and 2015 MFLS report several other characteristics of spouse employment, including spouses’ career fields, self-employment, and licensure and certification requirements. Figure 4 shows the top five career fields of active duty spouses, which are fairly similar across the two surveys (see figure note for additional details that may help explain discrepancies in findings).

Figure 4.
Comparison of Active Duty Spouses’ Top Five Career Fields

2015 ADSS	2015 MFLS
Other occupations not listed above which do NOT require a state license (19%)	Education/education services (17%)
Health care/health services (18%)	Health care/health services (14%)
Education (12%)	Community and social services (13%)
Administrative services (11%)	Financial and business services (11%)
Retail/customer service (10%)	Administrative services (9%)

Note. The top five career fields were taken from the following items/pages: 2015 ADSS (Q33) and 2015 MFLS (p. 41). Although these items had similar response options available across surveys, some differences existed in the number and content of these response options. These differences could have contributed to the differences in the proportions reported above across the two surveys. The 2015 ADSS included unique response options for child care/development, animal services, skilled trades, and communications and marketing, whereas the 2015 MFLS included unique response options for community and social services, arts/design/entertainment/sports/media, legal profession, personal care and service, science and engineering, and law enforcement and protective services. The *Other* category was a single response option in the 2015 MFLS, whereas in the 2015 ADSS it was broken out into other occupations which require a state license versus those that do not.

Active duty spouse self-employment rates and licensure/certification requirements are also somewhat similar across the two surveys.

- **Self-Employment:** The 2015 ADSS estimates that 13% of employed spouses are *currently* self-employed (Q34). In the 2015 MFLS, 23% of active duty spouse respondents said they are currently or previously have been self-employed (p. 41).

- **Licensure/Certification:** In the 2015 ADSS, 50% of spouses, regardless of employment status, have an occupation or career field requiring a certification or state-issued license (Q38). In the 2015 MFLS, 42% of active duty spouses had a job that required a license or certification (p. 40).

Spouse Employment Motivations and Challenges

The 2015 ADSS and 2015 MFLS report on spouses' desire to work, as well as reasons for not working among spouses who wish to be employed and among those who do not. Both surveys also provide insight on the challenges that military spouses face in pursuing employment.

- **Unemployment and Desire to Work:** In the 2015 ADSS, 74% of spouses who were not employed (i.e., unemployed or not in the labor force) reported that they want to work, and 38% reported that they need to work (Q39 a, b). By contrast, of the 55% of active duty spouses in the 2015 MFLS who were not employed, 58% reported that they would like to be employed, and 21% reported that they were unemployed by choice (an additional 21% were unsure) (p. 34).
- **Unemployment and Education:** The 2015 ADSS found that nearly one-quarter (24%) of unemployed spouses (i.e., those who were not employed but actively seeking work) are currently enrolled in school/training (Q18). By contrast, in the 2015 MFLS, 13% of active duty spouses who were not employed but wanted to be were currently students (p. 40).⁸
- **Unemployment and the Military Lifestyle:** In the 2015 ADSS, when asked why they have not been looking for work, some spouses who were not in the labor force indicated reasons unique to the military lifestyle, including preparing for/recovering from a PCS move (22%) and inability to work during spouse's deployment (16%) (Q27 d, m). Spouses also endorsed several additional reasons that are not necessarily unique to the military lifestyle but may be exacerbated by it (see the following section). Similarly, in the 2015 MFLS, 75% of active duty spouse respondents reported that being a military spouse had a *negative* impact on their ability to pursue a career (5% *positive*; 20% *no impact*) (p. 35).

The 2015 ADSS asked spouses who are not in the labor force (i.e., those who have not been looking for work) about their reasons for not working. By contrast, the 2015 MFLS reported some of the reasons for not working among active duty spouses who a) wanted to be employed, and b) did not want to be employed. Although some ADSS spouses not in the labor force may want to work, they had not been taking active steps toward employment (i.e., looking for work) for at least the past four weeks. As such, their reasons for not working may be more comparable to those of MFLS spouses who did not want to work than to those who did. Accordingly, the overall comparisons for ADSS spouses not in the labor force and MFLS spouses who did not want to work are reported below but should be interpreted with caution.

⁸ The lower 2015 MFLS rate of unemployed active duty spouses who are currently students could be due to the 2015 MFLS sample being more educated than the 2015 ADSS sample. Whereas 55% of 2015 MFLS spouses had a bachelor's degree or higher (p. 32), the 2015 ADSS weighted sample estimates indicate that only 42% of active duty spouses have a bachelor's degree or higher (Q11).

- **Spouses Who Do Not Want to Be Employed:** The top reasons for not working among 2015 ADSS spouses who were not in the labor force (i.e., who had not been looking for work in the past four weeks) were that they *want to stay home to care for their children* (74%), *child care is too costly* (54%), and they *do not want to work* (37%) (Q27 f, i, a). About one-quarter (24%) of 2015 ADSS spouses not in the labor force said they did not need to work (Q39 b). Similarly, in the 2015 MFLS, active duty spouses who did not want to be employed indicated a variety of reasons for not working, including *not wanting to work* (23%), *not needing to work* (43%), *child care challenges* (34%), the *Service member's job/work obligations* (30%), and *family responsibilities* (point estimate not provided) (p. 34). Although the rates differ, the reasons for not working are similar across both surveys.

Child care emerged as an area of concern for spouses in both the 2015 ADSS and the 2015 MFLS. The following findings from both surveys show that spouses' child care needs and preferences are a barrier to spouse employment and education, and child care affordability is a particular concern.

- In the 2015 ADSS, the top two reasons that spouses who were not in the labor force had not been looking for work were *wanting to be able to stay home to care for their children* (74%) and *child care is too costly* (54%) (Q27 f, i). *Family responsibilities* (65%) and the *expense of child care* (45%) were also widely cited in the 2015 ADSS as barriers to education among spouses who were not currently enrolled in school/training but would like to be (Q20 d, h).
- In the 2015 MFLS, nearly half (49%) of active duty spouses said *family obligations* had the largest impact on their ability and preference for employment, second only to *frequent moves* (68%) and the *Service member's job demands* (68%) (p. 35).

Spouse Use of Financial Resources

The 2015 ADSS and 2015 MFLS also reported some findings on spouses' use of financial resources that can be compared.

- **Financial Resources:** The 2015 ADSS estimates that only 4% of active duty spouses used *online services* for money management in the past 12 months and 4% used *in-person services* (Q117). In the 2015 MFLS, a higher proportion of active duty spouses reported using in-person and online financial readiness resources, including *online articles* (38%), *family and friends' advice and recommendations* (37%), *their personal banking institution* (35%), *financial websites* (32%), *books, webinars, podcasts, and media* (32%), *their personal financial planner or counselor* (20%), *free classes or counseling provided by the military* (16%), and *training offered through the military* (11%) (p. 27).⁹

⁹ This discrepancy may be due to the 2015 MFLS recruiting spouses through national military and veteran service organizations. It is possible that spouses whom Blue Star Families could reach and recruit through these organizations may be more familiar with and likely to use financial readiness resources provided through these and other organizations than the overall active duty spouse population reflected in the 2015 ADSS results.

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Summary and Conclusion

The findings and methodology of the 2015 ADSS and 2015 MFLS differ in several important ways. This is as expected, given that the surveys were not designed to be comparable, used different measures, and had different target populations (active duty spouses vs. military members/veterans and their families). Although several findings were similar across the surveys (e.g., the employment rate, top career fields, self-employment rates, licensure/certification requirements, and reasons for not working), some meaningful differences in findings emerged between the two surveys, including the spouse unemployment rate, desire to work and educational enrollment among unemployed spouses, and spouses' use of financial resources. In addition to these differences in results, another key difference between the surveys was their methodology and sampling strategies. Whereas the 2015 MFLS findings were based on a convenience sample and are not generalizable, the 2015 ADSS used probability-based sampling and statistical weighting techniques so that the findings are representative of the active duty spouse population. Overall, the two surveys both provide insights into the experiences of military families; however, only the 2015 ADSS findings can be accurately generalized to the active duty spouse population and their perceptions of military family life.

References

- American Association for Public Opinion Research (n.d.). *Best practices for research*. Retrieved April 26, 2015 from <http://www.aapor.org/Standards-Ethics/Best-Practices.aspx>
- Baker, R., Brick, J. M., Bates, N. A., Battaglia, M., Couper, M. P., Dever, J. A., et al. (2013). Summary report of the AAPOR Task Force on non-probability sampling. *Journal of Survey Statistics and Methodology*, 1, 90-143.
- Blue Star Families. *2015 Annual Military Family Lifestyle Survey: Comprehensive Report*. Falls Church, VA: Blue Star Families.
- DMDC. *2015 Survey of Active Duty Spouses: Statistical Methodology Report* (Report No. 2015-027). Alexandria, VA: DMDC.
- DMDC. *2015 Survey of Active Duty Spouses: Tabulations of Responses* (Report No. 2015-028). Alexandria, VA: DMDC.
- U.S. Bureau of Labor Statistics and U.S. Census Bureau. (2002, March). *Current Population Survey: Design and Methodology* (Technical Paper 63RV). Retrieved April 26, 2015 from <http://www.census.gov/prod/2002pubs/tp63rv.pdf>

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For further information, see <http://www.dmdc.osd.mil/surveys>.

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