Swift as a follow-up engine for GW triggers: Improving for O3

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Swift's rapid slewing, flexible planning, and multi-wavelength instruments make it, currently, the most capable space-based follow-up engine for finding poorly localized sources. During O1 and O2 Swift successfully tiled hundreds of square-degrees of sky in the LVC localization regions, searching for, and identifying, possible X-ray and UV/O transients in the field. However, there remains significant room for optimization in preparation for O3. This will take the form of both revised observation strategy based on detailed analysis of the results from O2, and significant changes to Swift's operational capabilities. These improvements are necessary both for maximizing the likelihood that Swift finds a counterpart, and minimizing the impact that followup activities have on other Swift science priorities. We study possible improvements to the observing strategy itself for optimal tiling of the LVC localization regions. We also present work on operational upgrades that will help realize decreased latency in our response time, and minimize impact on pre-planned science goals, while maintaining spacecraft health and safety. These operational improvements will also significantly benefit other multi-messenger and localization projects, and further ensure that Swift is able to maximally contribute to the new age of gravitational wave and multi-messenger astronomy.