Usability Improvements to the GMSEC API Example Programs

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Background

The Goddard Mission Services Evolution Center (GMSEC) is a program whose efforts are to coordinate and reduce the cost of the development of flight data systems. The GMSEC architecture allows scalable and extensible ground and flight systems to be built for missions. GMSEC allows for the use of a number of components that can be selected based off the needs of the mission. GMSEC is also extremely flexible in that it allows for the addition, deletion, and exchange of components being used.

Figure 1: GMSEC logo

The GMSEC API example programs are provided as a means for new users to learn the basics of the GMSEC API and how GMSEC works. The original GMSEC example programs were very complex and were not the best for demonstrating one feature of the API concisely. As s result, users reportedly had a harder time learning the basics of programming with the GMSEC API. New example programs had to be written to better demonstrate the features of the GMSEC API without the complexities that the original examples had.

Methodology

One thing that was done to make sure that the new example programs clearly demonstrated the features of the GMSEC API was making sure that each example was self-contained in a single file. Many of the original example programs contained references to helper functions created specifically for the examples which were defined in external files. This caused confusion amongst many new users, as they had to hunt around for where these helper functions were defined. With all of the code in one file, users no longer needed to jump around to different files in order to figure out how the API feature demonstrated by the example works.

Each new example program only focuses on a single feature of the API that it demonstrates. Many of the original example programs do extra things in addition to demonstrating a feature of the API. Users will be able to learn the basics of the GMSEC API more quickly without all the aforementioned complexity.

The new example programs also have added more comments to their source code than the old examples. The comments in the new example programs explain everything that the example does. The original examples contained much fewer comments. Much of what the original examples did was not thoroughly explained.
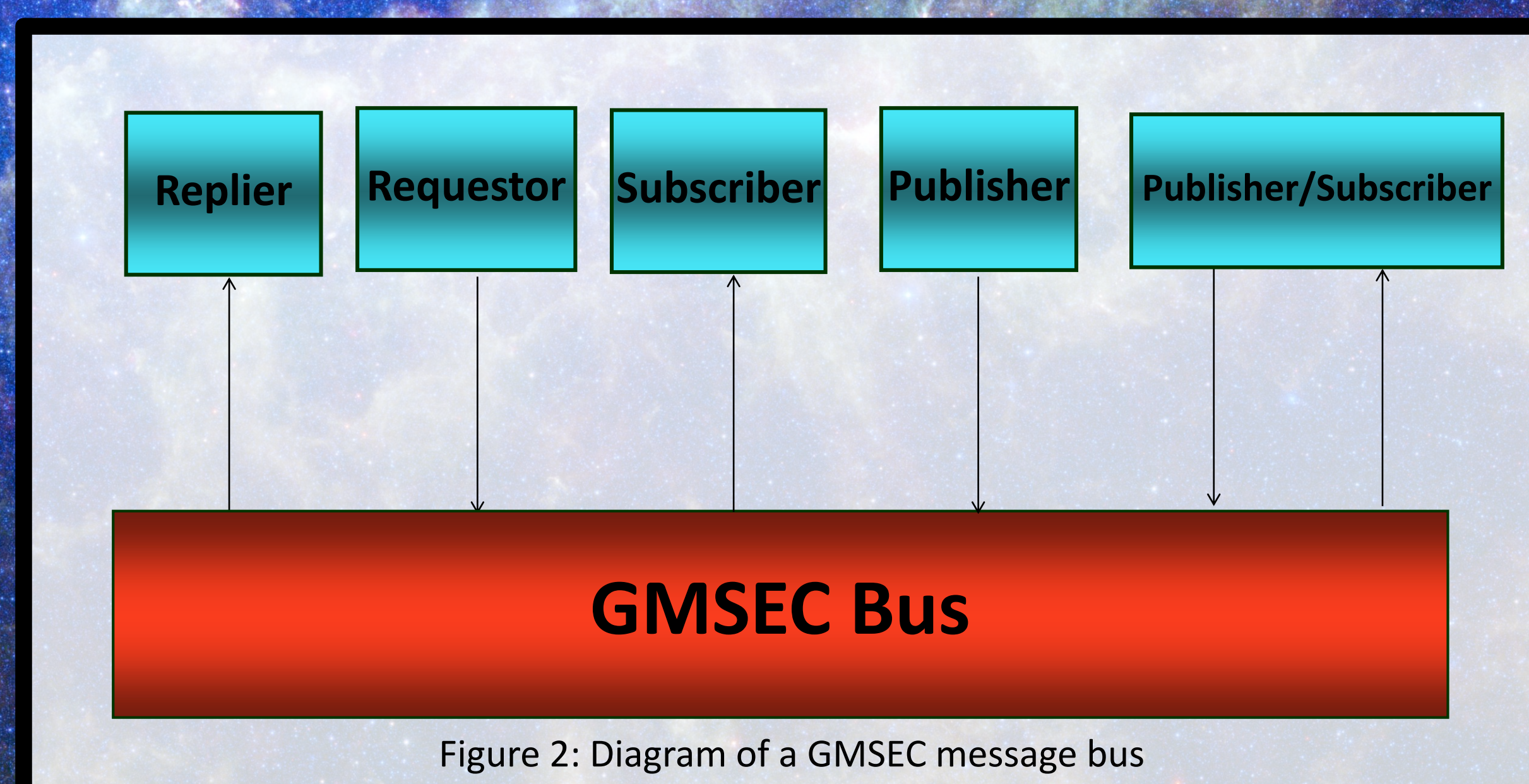

Figure 2: Diagram of a GMSEC message bus

Acknowledgments

Figure 3: Output of the new publish example program.