SOP Title: Example	SOP Number: 2014.1
Original Author/Title/Signature: Adam Tenderholt	**Origin Date:** 16-Sep-14
Management Approval/Title/Signature:	**Date:**
Quality Assurance/Signature:	**Effective Date:**

A. PURPOSE

The purposes of this test method are:

A.1. Introduce the Markdown syntax.

A.2. Demonstrate conversion to PDF.

A.3. Show how Github can be used to effectively collaborate.

B. BACKGROUND

Every time a test method has been updated, Luke posts the DOCX file to Egnyte. If anyone were to propose changes, the updated file would have to be mailed to Luke (or anyone involved with signing off on test methods) for approval. The revised document would then need to be re-uploaded to Egnyte.

This workflow of revising test methods strikes me as very inefficient, and so I started thinking about another method. As there were already talks about CVS, SVN, and git, I started thinking about Github since it already provides a great platform for collaboration. Indeed, there are already numerous non-code projects that take advantage of it.

The issue is then how to most effectively collaborate. Since DOCX files are binary, that basically negates any advantage that Github would provide. Therefore, a text-based format would be desirable. This format should be easily convertible to one that can be printed well, such as PDF, and it should have a very minimal learning curve. I think Markdown fits both of these requirements.

Markdown formatting was created as a way to specify document structure using a simple syntax for document features, with a goal of maintaining readability. This is in contrast to

mark-up formats such as HTML or LaTeX which require a more extensive knowledge to format documents properly and are not as human readable.

C. SYNTAX

C.1. Sections

Section headers are created by either placing # characters on the same line or = characters under the heading:

```
SYNTAX
======
```

or

```
# SYNTAX
```

Subsections can be created using multiple # characters or - characters:

```
Sections
--------
```

or

```
## Sections
```

C.2. Lists

Another feature that is very useful are nested (enumerated) lists. For example:

C.1. Item 1

- C.1.1. subitem 1.1
- C.1.2. subitem 1.2

C.2. Item 2

- C.2.1. subitem 2.1

The above list was created with the following syntax. Note that the list is auto-numbered based on section number, but this is *somewhat* configurable.

```
#.  Item 1
    #.  subitem 1.1
    #.  subitem 1.2
#.  Item 2
    #.  subitem 2.1
```

C.3. Highlighting

Items can be *italicized* or **bolded** using a very simple syntax:

```
*italicized*
**bolded**
```

D. CONVERSION

The open source program "pandoc" can convert from several text formatting styles, including Markdown and LaTeX, to output several other formats such as HTML, PDF, and DOCX.

It was most straight-forward to use pandoc to convert to PDF, which goes through a LaTeX intermediate file. *I did not explore any other formats, except briefly for DOCX which seemed harder to customize.*

Conversion from Markdown to PDF requires "pdflatex" to be properly installed. LaTeX to PDF has the advantage that customizing a template file is often all that is needed and can incorporate LaTeX math or other commands with little effort. For example:

$\int x^2 dx = \frac{1}{3}x^3 + C$

or

$$\int x^2 dx = \frac{1}{3}x^3 + C \tag{1}$$

E. GITHUB COLLABORATION

This next part is harder to show in a document, so a example Github repo has been created.

Features to highlight:

E.1. Personal forks for those not approved for the sign-off process.
E.2. Pull requests, with changes and being able to comment on lines.
E.3. Email notifications.