FTTF Recommendation to EC
Change to 1.4 EDM Related Standards Manual

From its early inception, FTTF has struggled with the issue of version levels and minimums specified within our standards. This is not an issue unique to the gas industry, nor can we eliminate this issue for our industry alone. In recognizing this issue, the FTTF recommended, and you and the industry adopted, a standard which mandates that the FTTF review standards referencing specific versions and software or hardware minimums at least on an annual basis. Of course the intent of this mandate is to ensure that versions and minimums are raised so that technology is a facilitator and enabler, not a road block nor deterrent to e-commerce within the gas industry.

In April and June of this year, the FTTF took action to recommend changing some existing minimums. Some of these actions impact standards prior to 1.4 while some impact only 1.4 implementation guides. After reviewing the most recent 1.4 EDM guides produced by the EDM Subcommittee, we noticed that they had included some changes to minimums proposed by the FTTF, such as browser versions, while they had not retained the FTTF recommendation to raise the minimum JDK level. The FTTF discussed this at their regularly scheduled meeting on October 22, and again at a special meeting on October 29, where this was the only item on the agenda. After many lengthy discussions, the FTTF voted 13-7-1 (for-against-abstain) to bring this item to the EC as a correction to the 1.4 Implementation Guide.

At issue is the minimum JDK (Java Developer Kit) level that developers of Customer Activities Websites should assume will be on the user's browser. Without trying to get to far down in the technical details, I'll try to explain the issue thoroughly enough so you have an understanding of the issue.

The two major browser vendors, Netscape and Microsoft, both produce web browsers that support JAVA. The browsers are shipped with a component called a Java Virtual Machine (JVM). This JVM allows the browser to run Internet applications developed using the JAVA programming language. However since JAVA is a product of yet another vendor, SUN, the browser only supports a specific version of JAVA, which of course, is never the current version of JAVA, and is sometimes many versions behind what is currently available from SUN. To

counter this problem, a user may download and install a plug-in from SUN which will allow his or her browser to now use applications developed with later versions of JAVA.

The current release of JAVA is at 1.2.x (or commonly referred to as Java 2). When the FTTF first developed the minimums for Customer Activities Websites, back in August of 1998, we specified the then latest release from Sun, which was JDK 1.1.6. In April of this year, several companies who were into JAVA development, came to the FTTF and asked us to consider raising the level from 1.1.6 to 1.1.7. The major reasons being the enhanced functionality and the numerous (8 page list) of problems fixed in 1.1.7. The FTTF voted to make this recommendation in the June 30, 1999 meeting..

Again, several companies who are using JAVA asked the FTTF to raise the minimum JDK to 1.2.x. This was the issue tackled at the past two FTTF meetings and I'm here today to pass on to you the FTTF recommendation that the 1.4 EDM Implementation manuals be changed to specify a minimum JDK level of 1.1.7 when published along with wording that will indicate that the minimum level will change to 1.2.x as of June 2000.

For most developers of Customer Activities Websites, this is a non-issue since they do not utilize JAVA. For companies using JAVA, there seem to be mixed opinions on when we should raise the minimum. No one at the FTTF meetings disagreed that the minimum should be raised. However, the date on which to raise the minimum was an issue debated by companies using JAVA. As I've already stated, the FTTF did take a vote and by almost a 2 to 1 majority, adopted a resolution to recommend a change to the minimum at this meeting today.

There is support from companies who have already implemented Customer Activity Website using JDK 1.1.x for the movement to JDK 1.2.x. Since these companies have an implemented site using JDK 1.1.x, you might think they should be arguing not to raise the minimum. However, they are viewing this issue from the customer's perspective and it's that view point that causes them to support moving the minimum to a higher level. There are many features that the customers want that cannot easily be delivered using JDK 1.1.x. Speed of response is a key customer need and JDK 1.2.x provides very significant improvement in that

area. A change in the JDK version may cause some additional work, however, I believe the payback will be in the increased performance and functionality that the customer will see.

I have done some research on migrating applications from JDK 1.1.x to 1.2.x. and here are just a few highlights from this research:

- From SUN's website "IT shops shouldn't have to port code they wrote for Java Development Kit (JDK) 1.1; that code should just work just fine on the Java 2 platform, and it should run with near native-code performance" Dave Griswold, Sun's manager of performance for the Java 2 platform.
    - We know that there are certain components, like SWING, that do require some conversion effort. One company went through this effort just to see how difficult it would be, and it took less than one full day.
- I have contacted SUN and talked to them about this issue. They have provided me with a paper detailing Java 2 compatibility with Previous Releases. Here are a couple of excepts from this paper:
    - On binary compatibility: "...downward binary compatibility is generally supported, though not guaranteed. Maintenance releases (for example 1.1.1, 1.1.2) within a family (1.1.x) will maintain both upward and downward binary-compatibilty with each other. Functionality releases (for example 1.1, 1.2) within a family (1.x) will maintain upward but not necessarily downward binary-compatibility with each other.
    - Version 1.2 of the Java 2 SDK is upwards source-compatible with JDK software versions 1.0 and 1.1, expect for the incompatibilities listed. This means that, except for the noted incompatibilities, source files written to use the language features and APIs defined for 1.0 and 1.1 can be compiled and run in version 1.2.
- Early adopters of Java 2 are confirming Sun's claims about performance boosts and stability

- Quotes from Gartner Group

  - "Java 2 platform looks like a mature adult compared to the adolescent JDK 1.0, and JDK 1.0's teenage successor JDK 1.1"

  - "Java 2 platform will help take Java technology to a new level of acceptance by enterprises. Enterprises tiptoed into earlier JDKs, mindful of the incipient nature of JDK in the areas of database access, GUIs, graphics, printing, security, internationalization, component-based development, documentation authoring, foundation classes, and performance. Sun intentionally aimed the Java 2 platform effort precisely at improving and adding those features mandated by enterprise developers."

  - Gartner says that the majority of firms using JAVA will adopt JAVA 2 by the end of 1999, while calling those waiting to adopt until mid-2000 'late majority', and those waiting beyond 2000 'laggards'.

  - From a December, 1998 report: ... those custom applications that require advanced database access or security may benefit from Java 2 platforms.... Most in-progress, customer Java technology development projects should take a step back and consider whether the benefits of Java 2 platform warrant project retrofitting.

While these are 'minimums', I have had some folks tell me that we don't need to change the Implementation Guide, that any one who wants to use a higher JDK level would only be 'exceeding' the standard. While this is probably true, and is used extensively throughout our industry, I also do not believe that this would be in the best interest of the customer, or users of the Customer Activity Websites. Different JDKs are not compatible with one another in the fact that only one JDK can be recognized by a browser at any given time. That is, if a developer required the use of Java Plug-in 1.1.1 and another required the use of 1.1.3, the user would be forced to switch JDK levels each time he or she accessed a site that required another version of the plug-in. This again, is not a specific gas industry problem, but an issue that must be dealt

with by all Internet developers and users. However, I don't believe that our industry should intentionally add to this problem. FTTF attendees reported that their companies have already encountered customers who have the latest Java Plug-in (for Java 2). This means that these customers must close their browser, use a utility to switch to another JDK level, then relaunch their browser to access the Customer Activity Website, then repeat the exact same procedure to access the other websites they access which use Java 2. This problem will do nothing but grow into a larger burden for gas industry customers until we move to the current JDK level.

While the FTTF, and GISB, will probably continue to wrestle with versioning and minimums in general, adoption of this change will greatly enhance the ability of those who choose to use Java to provide the best possible site not limited or burdened by outdated technology constraints.

The FTTF has some thoughts on how we might better address version and minimum issues in the future. We hope to develop some ideas to pass on to you sometime next year. We hope to get our next required annual review of all versions and minimums to you my mid-year 2000 (especially since last year's review was not processed).

I hope I have been able to explain this issue as 'non-technically' as possible. FTTF requests that the EC will adopt this change and allow customers to have problem-free interaction with Customer Activities Websites using client-side Java.