



INPUBLIC CORPORATE WEB SERVICES (CWS)

XML SPECIFICATIONS

Last update: October 28th , 2016

XML is a way to format data of all kinds so that it can be exchanged between all sorts of systems. It's based on tagging data with what type of data it is. It's actually pretty simple at the basics.

Example:

```
<headline>Fourth Quarter Earnings release</headline>
```

This tells a system that this is a headline, and then the system can transform this data in a special way defined by a web designer.

XML has proved to cover a gap in web technology when systems are supposed to work together to create a smooth experience to the website visitor. Of new solutions recently developed by Nasdaq, the majority are based on XML.

There are serious benefits to using XML in web solutions:

- Cooperation between systems can be done behind the scenes and not on the webpage surface.
- Integration of news releases into your web server database makes it easier for a web agency to have 100% control of how a page is displayed.
- Transfer between systems gets non-critical. If an error occurs on either side it will not affect the website visitor.
- Once the XML integration is established Nasdaq will not need to be consulted on changes in design or features on your webpage. The web agency has 100% control.
- The Nasdaq XML integration can be invisible to the website visitor if you wish.
- Proven technology, all serious web creation software supports XML integration as standard

Below you will find links to different XML Feeds. Additionally to that, please also find the **.dtd files** which describes the solution in more technical details. Remember that this is data formatted for a computer to read, it's not a normal web page. If your browser is updated it will display it in a tree structure that is easy to read.

Example 1: XML releases feed in standard format, with release categories and with ingress (first X characters of a release) http://cws.huginonline.com/I/136807/releases_all.xml

Example 2: XML full release detail

<http://cws.huginonline.com/I/136807/PR/201406/1792418.xml>

Example 4: XML reports feed in standard format, with report categories

http://cws.huginonline.com/I/136807/reports_presentations_all.xml

Possible report/presentation types (e.g. `<file id="390949" format="pdf" type="Annual Report" size="24.63KB">`) are:

- Annual Report1st Quarter
- 2nd Quarter
- 3rd Quarter
- 4th Quarter
- Presentation of Annual Report
- Presentation of 1st Quarter
- Presentation of 2nd Quarter
- Presentation of 3rd Quarter
- Presentation of 4th Quarter
- Fleet List
- Other
- Presentation of Company
- Presentation of Project

Nasdaq has numerous customers using our XML product for various reasons. One is to make good search engines, others just want their news integrated into their already working Content Management System (CMS).

Examples: Websites that are based on an XML solution delivered by Nasdaq

Client website	Note
http://www.nutreco.com	Press Room -> Press releases
http://www.morphosys.com	News & Investors

Important note on how XML and RSS feeds should be polled/processed

Homepage Update XML feeds come without a push function. The same applies to RSS feeds. This means that the feed must be polled. Nasdaq recommends a polling frequency of up to two feed polls per minute, but not more than that. It is required that target websites read the [HTTP header last-modified](#) (available for all feeds).

As an alternative the <lastmod> time stamp of a XML feed can be checked, but this is heavier on bandwidth and the load on the system and therefore this should only be run at a maximum frequency of one read-out per minute. In either case, only if HTTP header or <lastmod> time stamp have changed, a feed poll should be triggered.

When the HTTP header or <lastmod> time stamp have changed and a feed poll is triggered, in 99% of the cases, it is about the addition of new content to the feed. The latest content (release, report, etc.) is always at the top of the feed. In the cases of the other 1% remaining, feed content has either been edited/updated or removed. Only in this case, the entire feed content (e.g. all releases, etc.) should be re-processed.

WARNING: If an unreasonable amount of traffic is coming from an IP address, you will be asked to reduce your polling frequency. If no improvement was noticed despite notification, Nasdaq reserves the right to block IP addresses or IP ranges accordingly.

For any further inquiries and information on XML based Nasdaq homepage update solutions, you may contact your dedicated PR Service Manager or our Publishing Support team at

Email: Publishing.Support@nasdaq.com

Phone numbers are available at <https://ip.globenewswire.com/hugin/login.faces>

Our Publishing Support team is available 24/7 on 365 days a year.