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Clinical Messaging – Attachment Types

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| Ref No | Doc Reference Number | Title | Version |
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Glossary of Terms

|  |  |
| --- | --- |
| Term / Abbreviation | What it stands for |
|  |  |

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This document is valid from: **6th February 2014**

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# Introduction

This document defines which file / MIME types can and can’t be embedded within, or attached to, messages providing Clinical Documents sent between systems either direct point to point or via the Spine TMS.

## Purpose

The purpose of this document is to inform suppliers which file / MIME types they should allow and what action should be taken for file types that are not listed in this document.

## Audience

The intended audience for this document is all suppliers involved in the sending and receiving of messages containing Clinical Documents. It may also be of interest to users of systems provided by these suppliers.

## Document Scope

The scope of this document is limited to files attached to messages containing Clinical Documents. In the absence of any other similar guidance or requirements for other areas, suppliers may use this document as the basis for controlling other files attached to, or stored within, other healthcare systems.

## Document Overview

This document lists file types which are considered safe to exchange – these are known as the ‘Approved List’.

# Attachment File Types

## General Rules and Guidance on Attached Files

**Content must be "openly readable"**:- Any file that requires a specific (paid for) application not readily available to healthcare systems or included within healthcare system operating systems, to be able to read it should not be included in Clinical Documents. This is justified principally on the grounds that it is either asking for a message containing such a file to be rejected or it may impact patient care if the contents of such a document are important in this respect. Note that is doesn't exclude Microsoft Office application files, because these can be read by open source applications such as OpenOffice.

**Content must be self-contained:** External links (e.g. hyperlinks) that have to be followed in order for a message to be used must not be included/embedded within the attached file, unless they are for human readable advice / guidance rather than machine processable content. This also includes more files embedded within the attached file. Note that this does mean references to related documents cannot be included.

**Content should avoid being "active":** PDF’s, Images are a good example of inactive content whereas Spreadsheets with lots of calculations and pivot tables or macros in them are less so and content such as VBA and macros are considered ‘active’ and should not be included. Apart from the known security issues with such content, sending such content also assumes that the execution environment on the receiving system(s) can support it.

**Content must be self-describing:** For example, a file containing a JPEG image encoded in base64 or UUEncode isn't a ".b64" or ".uue" type - its type is still an image/jpeg and its MIME type must confirm this and its file extension should be “.jpg” or “jpeg”; and a compressed XML attachment isn't .zip or .gz, but text/xml or application/xml. And application/octet-stream might be true, but is not explicit. Note that both the ITK distribution envelope manifest, and the HL7v3 ED data type allow the encoding and compression to be stated independently of the MIME type.

**Content should be as explicit as possible about its type:** For example, a CDA file could be of type text/xml but it is better represented as application/xml+cda.

## Approved List

The Document / MIME types listed below are considered approved to include, (e.g. as attached files, to patient records) in healthcare systems. The list is not exhaustive or comprehensive – it covers well known and used file types often used to convey patient related healthcare information.

**The inclusion of a file type on this list does not in any way guarantee that such a file cannot contain viruses and other malicious content – all files whether on the approved list should be scanned for viruses and other malicious elements by reputable and up to date anti-virus software prior to allowing it into the system.**

Amongst the ‘white list’ are several that are recommended types for use within healthcare systems. Where a system either creates attached files or has the opportunity to amend the type of a file (i.e. convert it to another format), systems should use the recommended file types.

**Notes**

1. The file extension alone may not determine the type of file, Systems should use a combination of file extension, MIME type, Magic Numbers and any other attributes that can be used to determine the type of file.
2. Renderers will typically be able to support multiple file types and will not use the file extension to determine how it should be rendered.
3. The tables include the most commonly used file extensions for each file category - other less commonly used file extensions may exist under any file category heading.

|  |  |  |
| --- | --- | --- |
| Document Type | MIME-Type | Ext |
| Microsoft Word Document | application/msword | .doc |
| Microsoft Word Open XML Document | application/vnd.openxmlformats-officedocument.wordprocessingml.document | .docx |
| Outlook Mail Message – plain text format only – no hyperlinks or attached files. | application/msoutlook | .msg |
| Rich Text Format File (recommended) | text/rtf | .rtf |
| Plain Text File | text/plain | .txt |
| Bitmap Image File | image/bmp | .bmp |
| Graphical Interchange Format File | image/gif | .gif |
| JPEG Image File | image/jpeg | .jpeg |
| Portable Network Graphic | image/png | .png |
| Tagged Image File (recommended) | image/tiff | .tif |
| XML File (recommended) | application/xml | .xml |
| Audio Interchange File Format | audio/x-aiff | .aif |
| Media Playlist File | audio/x-mpegurl  | .m3u |
| MPEG-4 Audio File | audio/mpeg | .m4a |
|  |  |  |
| MP3 Audio File | audio/mpeg | .mp3 |
| MPEG-2 Audio File | audio/mpeg | .mpa |
| WAVE Audio File | audio/x-wav | .wav |
| Windows Media Audio File | audio/x-ms-wma | .wma |
| 3GPP2 Multimedia File | video/3gpp2 | .3g2 |
| 3GPP Multimedia File | video/3gpp | .3gp |
| Advanced Systems Format File | video/x-ms-asf | .asf |
| Microsoft ASF Redirector File | video/x-ms-asf | .asx |
| Audio Video Interleave File | video/x-msvideo  | .avi |
| Flash Video File | video/x-flv | .flv |
| Apple QuickTime Movie | video/quicktime  | .mov |
| MPEG-4 Video File | video/mp4 | .mp4 |
| MPEG Video File | video/mpeg | .mpg |
| Real Media File | audio/vnd.rn-realaudio | .rm |
| Shockwave Flash Movie | application/x-shockwave-flash | .swf |
| DVD Video Object File | video/x-ms-vob | .vob |
| Windows Media Video File | video/x-ms-wmv | .wmv |
| Encapsulated PostScript File | application/postscript | .eps |
| PostScript File | application/postscript | .ps |
| Scalable Vector File | image/svg+xml  | .svg |
| Picture File | image/x-pict | .pct |
| Portable Document Format File (recommended) | application/pdf | .pdf |
| Open Office XML Relationships File | application/vnd.openxmlformats-package.relationships+xml | .rels |
| Cascading Style Sheet | text/css | .css |
|  |  |  |
| Hypertext Markup Language File | text/html | .html |
| Extensible Hypertext Markup Language File | application/xhtml+xml  | .xhtml |
| Plain Text File | text/plain | .txt |
| JSON | application/json | .json |
|  |  |  |
| XML File | text/xml | .xml |
|  |  |  |
| XML File | application/xml | .xml |
| Portable Document Format File | application/pdf | .pdf |
| Basic audio | audio/basic | .au |
| MPEG | audio/mpeg | .mp3 |
| Portable Network Graphic | image/png | .png |
| Graphical Interchange Format File | image/gif | .gif |
| JPEG Image File | image/jpeg | .jpeg |
| Tagged Image File | image/tiff | .tif |
| MPEG | video/mpeg | .mpg |
| Microsoft Word Document | application/msword | .doc |
| Binary data | application/octet-stream | \*[[1]](#footnote-1) |
| Comma seperated value | text/csv | .csv |
| DICOM image | application/dicom | .dcm |
| Zip archive | application/zip | .zip |
| RAR archive | application/x-rar-compressed | .rar |
| GZip archive | application/x-gzip | .gz |
| Excel Spreadsheet | application/vnd.ms-excel | .xls |
| Excel Spreadsheet | application/vnd.openxmlformats-officedocument.spreadsheetml.sheet | .xlsx |
| Windows Media Video File | application/x-mplayer2 | .asx |
| Basic audio | audio/x-au | .au |
| Windows Media Video File | application/x-troff-msvideo | .avi |
| Windows Media Video File | video/msvideo | .avi |
| Bitmap Image File | image/x-windows-bmp | .bmp |
| PKI certificate | application/pkix-cert | .cer |
| PKI certificate | application/x-x509-ca-cert | .cer |
| NetCDF file | application/cdf | .cdf |
| NetCDF file | application/x-cdf | .cdf |
| NetCDF file | application/x-netcdf | .cdf |
| PKI certificate | application/x-x509-user-cert | .crt |
| EDIFACT message | application/EDIFACT | .edi |
| EDIFACT message | application/EDI-X12 | .edi |
| EDIFACT message | application/EDI-Consent | .edi |
| HL7 v2 message | application/hl7-v2 | .xml |
| HL7 v2 XML-encoded message | application/hl7-v2+xml | .xml |
| MPEG Video File | video/x-mpeg | ,mpeg |
| PKI certificate | application/pkcs10 | .p10 |
| PKI certificate | application/x-pkcs10 | .p10 |
| PKI certificate | application/pkcs-12 | .p12 |
| PKI certificate | application/x-pkcs12 | .p12 |
| PKI certificate | application/x-pkcs7-signature | .p7a |
| PKI certificate | application/pkcs7-mime | .p7c |
| PKI certificate | application/x-pkcs7-mime | .p7c |
| PKI certificate | application/pkcs7-mime | .p7m |
| PKI certificate | application/x-pkcs7-mime | .p7m |
| PKI certificate | application/x-pkcs7-certreqresp | .p7r |
| PKI certificate | application/pkcs7-signature | .p7s |
| Rich Text Format File | application/x-rtf | .rtf |
| Zip archive | application/x-compressed | .zip |
| Zip archive | application/x-zip-compressed | .zip |
| Zip archive | multipart/x-zip | .zip |
| PKI certificate | application/pgp | .pgp |
| PKI certificate | application/pgp-keys | .pgp |
| PKI certificate | application/pgp-signature | .pgp |
| PGP file | application/x-pgp-plugin | .pgp |
| PGP encrypted file | application/pgp-encrypted | .pgp |
| WAVE Audio File | audio/wav | .wav |
| WAVE Audio File | audio/wave | .wav |
| WAVE Audio File | audio/x-pn-wav | .wav |
| Standard Data File | chemical/x-mdl-sdfile | .sdf |
| MDL Molfile | chemical/x-mdl-molfile | .mol |
| Protien Databank | chemical/x-pdb | .pdb |
| HL7 message | application/x-hl7 | .xml |
|  |  |  |

## Other File Types

Other file types and categories and file extensions not explicitly listed under the ‘Approved List’ section above may be encountered from time to time. As with any file, these should be checked by up to date anti-virus software. Systems should err on the side of caution when encountering such files. For example, such files may be placed into a quarantine area pending a user confirming the authenticity of the file before inclusion within a healthcare system.

Additional MIME types can be added to this document from time to time and will be reissued in such cases.

If the supplier has a means to render other MIME types then this can be performed and communicated back to the authority so the Approved List can be updated.

The principles in the use of other MIME types that the supplier must follow are:

* The MIME attachment must not contain any scripting that would be executed on the servers or the viewing device.
* The MIME attachment must not contain executable binaries that would be executed on the servers or the viewing device.
* The MIME attachment must be checked for viruses and malware, particularly where certain MIME types are susceptible from virus attack.
1. The binary MIME type application/octet-stream is to maintain compatibility of the specification with Spine II, but for GPSoC this wild card is excluded. [↑](#footnote-ref-1)