

Improve COVID-19 response with simple and efficient digital faxing

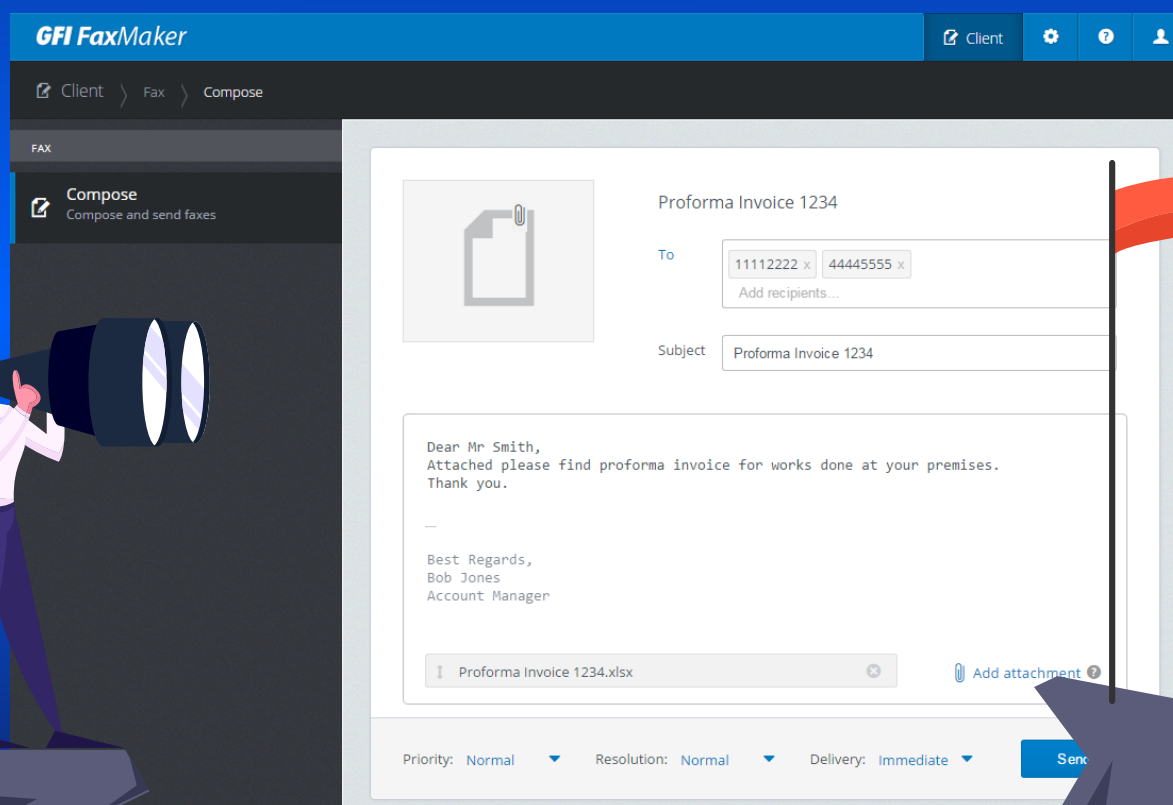








Table of Contents

 Introduction	3
 Digital and online faxing alternatives	5
 What you will need for online faxing	10
 Email-to-fax economics	13
 Get your free GFI FaxMaker trial	14
 Get your free GFI Archiver trial	14

While the use of faxing has declined in other industries, it's estimated that 75 percent of all medical communications still happen by fax.² That was a problem before the COVID-19 pandemic but, as a [recent New York Times article](#) explains, dependence on faxing is quickly turning into a disaster for overwhelmed healthcare providers.

In this paper, we'll examine why faxing persists in healthcare, the limitations of paper-based faxing (which remains the dominant form of faxing), and the benefits of digital faxing to overcome those limitations.

There are many good reasons why fax technology persists in healthcare:

- Fax protocols offer greater security than email against some forms of malicious attacks
- HIPAA legislation calls out fax specifically as an acceptable mechanism to exchange protected health information (PHI)
- Requirements for signatures in many medical information exchanges (such as pharmaceuticals)
- Lack of interoperability among electronic health record systems, making paper a common medium
- Many data artifacts continue to be hand-written and on paper.



Faxing has many reasons why it will continue to be a fixture in healthcare information systems for some time. However, there is no reason why it must continue to be a manual or physical process involving paper being fed into a machine by a trained professional.

Traditional machine faxing presents many, growing problems for healthcare:



Inefficient use of healthcare professionals' time

The Council for Affordable Quality Healthcare projects that providers could save a minimum of 1.1 million labor hours every week by using electronic transactions instead of manual processes.³



Mis-sent faxes with manual dialing

Official notes accompanying HIPAA legislation specifically state: “For example, when faxing protected health information to a telephone number that is not regularly used, a reasonable safeguard may involve a provider first confirming the fax number with the intended recipient.”⁴



Information may be left in fax trays and exposed to unintended readers

A major fax manufacturer calls this issue out: “Documents should never be left unattended, and unattended print trays are a hotbed for HIPAA violations.”⁵



Difficulty and effort to append paper records to electronic health records (EHR)

Even if you decide to continue faxing or receiving paper, EHRs now and in the future will require important healthcare data on paper to be scanned or digitized to append to a patient's EHR.

① <https://getreferralmd.com/2016/08/30-healthcare-statistics-keep-hospital-executives-night/>

② <https://www.vox.com/health-care/2017/10/30/16228054/american-medical-system-fax-machines-why>

③ <https://www.caqh.org/about/press-release/reducing-manual-business-transactions-could-save-healthcare-94-billion>

④ <https://www.hhs.gov/hipaa/for-professionals/faq/482/does-hipaa-permit-a-doctor-to-share-patient-information-for-treatment-over-the-phone/index.html>

⑤ <https://www.ricoh-usa.com/en/insights/library/articles/3-unforeseen-phi-risks-with-your-fax-machine>

Digital and online faxing alternatives

There are a variety of software options to physical faxing: you can now operate local or cloud-based software that uses email or printers as an intermediary application for sending, receiving and securely storing faxes. GFI FaxMaker paired with GFI Archiver is one such solution. The two products are available separately but are attractively priced to deliver more value for healthcare as a bundle.

The GFI FaxMaker and GFI Archiver bundle offers several benefits for managing fax issues in healthcare.

Ease and flexibility of use

There are a variety of ways to send a fax electronically using GFI FaxMaker:

- Through the web client
- From your installed email client
- By “printing” to a fax through a special NetPrintQueue2Fax printer driver
- Or through third-party tools that use APIs to connect with FaxMaker and enable faxes to be sent.

From the GFI FaxMaker web client: Access the GFI FaxMaker web interface from a supported web browser and compose faxes from the web client.

From your email client: Users can send faxes directly from their favorite email client, such as Kerio Connect, Microsoft® Outlook®, or Google Gmail.

Address the email to **faxnumber@faxmaker.com**, where *faxnumber* is replaced by the recipient’s fax number. The email body is added to the cover page and then add any attachments to transmit via fax.

Through print-to-fax: Users can send faxes by “printing” content to the NetPrintQueue2Fax printer driver. The fax recipient number is keyed in within the document in a customizable format, for example Fax: 12345678.

Through third party tools with APIs: Use third-party tools to automatically generate API calls containing the information about the faxes to send and automate the fax sending process. EHR vendors can take advantage of this.

For example, use XMLAPI with your EHR software to create an XML report template for lab results that need to be sent to public healthcare departments, generate this report when new results are ready and store it to the XMLAPI pickup folder. GFI FaxMaker can automatically transmit the results to their intended recipients.



Time-savings and time-sensitivity

While some healthcare information is administrative, it can also be life- and time-sensitive. With the ability to route faxes to specific email inboxes, you can get healthcare information to the right floor or physician who can be waiting for the information on a mobile device.

Physical faxes take longer to send based on the number of pages being faxed. Email-to-fax processes send multi-page faxes as quickly as single-pages—and as fast as clicking send.

The ability to use common standards such as active directory for commonly used addresses speeds up the process to find the right recipients.



Sending faxes with security

There are many ways to send a fax online using GFI FaxMaker. All are inherently more secure than standing over a physical device and punching in a number. With GFI FaxMaker, you can select recipients from the same active directory you use for email, letting you store and select fax-number recipients with the same ease as selecting email addresses.

Whatever online fax mode you select, you can always confirm the recipient's fax number before hitting send. You also can easily configure reporting to get automatic confirmation of fax delivery, and information about any failures. Notifications happen through your FaxMaker client, meaning you do not have to stand over a machine waiting for redials to ensure a fax has been sent and received.

Productivity improvements were immediately noticeable as well. Employees adapted very quickly to sending and receiving faxes from the desktop; they no longer needed to print documents, take them to a physical fax machine, and then make multiple trips to verify if they were sent successfully or not. With FaxMaker, users can get secure faxing and an accurate record of when a document was sent or received.⁶

⁶ <https://www.gfi.com/products-and-solutions/email-and-messaging-solutions/gfi-faxmaker/resources/case-studies/windsor>



Receiving faxes with security

GFI FaxMaker can route inbound faxes directly to users' email, file folders or network printers based on the fax number dialed (DID or DTMF routing); the senders' fax machine ID (CID routing); on the line the fax comes in on (line routing); or via optional optical character recognition module (OCR routing).

Route faxes based on the sender's fax number. Any fax from a specific clinic, for example, could be routed to the specialist who works with that clinic.

Route based on a fax line. If you already have a fax line set up from physical faxing, you can ensure the fax to email is delivered to specific individuals based on the original fax number.

Route based on phone extensions (DID). You can store, for example, hospital department phone numbers in your contacts database, all with the same main number but different extensions. You can use your database to send faxes to the correct recipients based on their extension number.

Route based on words identified through optical character recognition (OCR).

FaxMaker reads the fax, looking for names or other trigger words. Then, based on recognition and rules you create, it sends the fax to a recipient you've designated.

**Security of information**

Documents delivered through fax lines to email inboxes are not subject to the risk of PHI being left on fax machines trays where unintended people can pick it up or read it.

Email inboxes are typically password protected, with terminals that "go to sleep" and require passwords to activate them if untended. This reduces the risk of walk-by fax security breaches for protected health information.

**Legal compliance through archiving**

GFI FaxMaker can archive all inbound and outbound faxes to a central location. This lets you record all fax communications and enables the easy retrieval of faxes.




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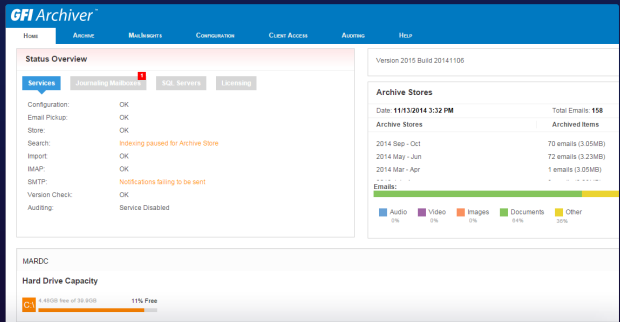
Direction	Date	Sender	Recipient / Routed To	Subject	Pages	Result
Out	6/4/2010 6:52 PM	John Doe	John Doe #8		2	✓
Out	6/22/2010 6:52 PM	Bob Johnson	John Doe #10		2	✓
Out	6/22/2010 6:52 PM	Bob Johnson	John Doe #5	Meeting cancelled	2	✓
Out	6/22/2010 6:52 PM	Bob Jones	John Doe #1	Quotation	1	✓
Out	6/23/2010 6:52 PM	Bob Jones	John Doe #6	Company notification	1	✓
Out	6/23/2010 6:52 PM	John Doe	John Doe #3	Meeting request	2	✓
Out	7/2/2010 6:52 PM	Joe Bloggs	John Doe #9		2	✓
Out	7/2/2010 6:52 PM	Joe Bloggs	John Doe #4	Request for quote	2	✓
Out	7/22/2010 6:52 PM	John Smith	John Doe #7	Change of address	1	✓
Out	7/22/2010 6:52 PM	John Smith	John Doe #2	Invoice approval	1	✓
In	6/22/2014 6:52 PM	44444444	johnson@mydomain.com	Fax received from 444444...	2	✓
In	6/22/2014 6:52 PM	33333333	bloggs@mydomain.com	Fax received from 333333...	1	✓
In	6/22/2014 6:52 PM	22222222	cameron@mydomain.com	Fax received from 222222...	2	✓
In	6/22/2014 6:52 PM	44444444	johnson@mydomain.com	Fax received from 444444...	3	✓



Archiver

Archive faxes, files, folders, calendar entries and emails in a safe, secure and tamper-proof archive.

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The screenshot shows the GFI Archiver web interface. It includes a navigation menu (Home, Archive, Mailboxes, Connections, User Access, Admin, Help) and a 'Status Overview' section with tabs for 'Archiving Mailboxes', 'Mail Servers', and 'Licenses'. The 'Services' section lists various components like Configuration, Small Printout, Store, Search, Import, IMAP, SMTP, Version Check, and Auditing, each with a status indicator (OK or Service Disabled). The 'Archive Stores' section shows a date filter (11/3/2014 3:32 PM), total email count (158), and a bar chart showing the distribution of archived items by type: Audio (0%), Video (0%), Images (0%), Documents (94%), and Other (2%). A 'Hard Drive Capacity' section at the bottom shows a progress bar for 11% free space.

You can store all faxes in a database, such as a Microsoft SQL/MSDE database. You can also send fax copies to a designated email address. This is a simpler option than the SQL database, as there is no need for coding or manipulating SQL data to get it to work. Copies of transmitted, received and/or failed faxes are sent via email to a mailbox. You can then use an email archiving solution, such as GFI Archiver, to archive the mailbox. With an archiving system, you can search, find, and see the contents of a fax document through the archiver database.

Digital archiving is inherently faster and easier to search. Medical records are generally required to be stored for a minimum of seven to 10 years; longer if the patient was a minor. Paper-based systems have been shown to degrade over time, with ink fading, paper disintegrating, and of course, are far more vulnerable to inadvertent destruction or loss through fire, flood or other event.

If you were storing faxes previously in an email system, but without the added benefit of a true storage and retrieval archiving system, GFI offers a migration facility. This allows you to move any prior faxes stored in an email database into GFI Archiver to complete your records.



Control

If a fax comes into your system but doesn't meet any rules based on sender or recipients, you can create default routing rules to ensure it is delivered to a secure, monitored inbox. You can also set up a recipient email address to receive all faxes. In this way, you can track all communications via fax. This default rule can complement any other rules you have in place.

You can set up rules for the header and footer of cover pages, to clearly identify the sender and put in place any legal disclaimers or other standard text your organization feels is necessary.



Consistent with the direction towards EHRs

Over 80 percent of healthcare facilities are using some form of electronic health record. Online fax data is digitized so it can be appended to EHRs to ensure health data is able to be stored in one place.

GFI FaxMaker comes with an open API that allows it to work with, and be embedded in, electronic healthcare record systems. One example of such an implementation is with AllScripts. Using the available API, you can access information in the electronic health record system and send it as a fax, directly and securely.



What you will need for online faxing

GFI FaxMaker uses an email interface to deliver and receive faxes rather than a physical fax machine. Your healthcare information is still sent through a fax protocol. There are three options for your email-to-fax communications and transmission:

- **Hybrid faxing:** FaxMaker software installed; no fax hardware (boards/modems); secure faxing over the internet
- **Hardware faxing:** FaxMaker software installed; with fax lines & modems/boards
- **Online faxing:** Somewhat less featured than FaxMaker; no installation, no infrastructure required; secure faxing over the internet.





Hybrid faxing option

GFI FaxMaker can send and receive faxes securely via online fax services (Hybrid faxing), eliminating the need for fax hardware (boards/modems) and phone lines. Transmission capabilities from GFI Online Fax Services and etherFAX replace the need to integrate with phone systems and to use fax hardware.

GFI Online Fax Services is a secure, web-based fax communication system facilitated over https. GFI FaxMaker sends and receives faxes from the service. From there, the fax is sent or received over traditional TDM networks, eliminating the need to connect phone lines and fax boards to the fax server.

etherFAX is a company offering a fax communication system facilitated over https with additional “defense-in-depth” encryption semantics, ensuring that every transaction is secure. Faxes are transmitted over traditional phone lines from there, eliminating quality of service (QoS) issues. This service is available in the US and Canada. Customers have the options to choose Canadian or American data centers when country-specific data integrity is required.



Hybrid faxing offers the benefits of all FaxMaker features (such as advanced routing, administration, archiving) without having to install or maintain fax boards, modems, dedicated phone lines or other physical requirements. As you are transmitting faxes securely through an internet service, you will not be paying long distance charges for the area the faxing service covers.

Some organizations use the hybrid faxing model as a “bridge” between today’s physical fax machine faxing and tomorrow’s all-digital approach. These organizations already have established fax lines and can continue to use them. However, they can decide to not replace lines or hardware and migrate to a completely software- and internet-based fax service.



Hardware option

GFI FaxMaker can use many fax devices, including modems. For organizations choosing this approach, GFI recommends investing in a professional fax server device such as a Brooktrout TR1034 or Trufax fax board.

These devices are superior to a modem or multi-port modem in terms of reliability and transmission speed. Modems can be unreliable, requiring regular resets, and are frequently not compatible with all fax machines, resulting in failed faxes. This is of specific concern for healthcare applications. Brooktrout and other devices are also relatively inexpensive: typically costing marginally more than using two modems.

GFI FaxMaker is also compatible with a “Fax over IP” (FoIP) technology. GFI FaxMaker FoIP enables fax communications to be transmitted over the IP network. FoIP also does not require physical installation of any fax cards or other devices, enabling GFI FaxMaker to be installed in a virtual environment.

To use a supported FoIP solution, integrate GFI FaxMaker with a digital telephony infrastructure such as Voice over IP (VoIP) gateway or SIP trunk (offering access to phone lines over the internet). GFI FaxMaker comes pre-packaged with installers for many popular FoIP software applications.

Hardware faxing has the benefit of avoiding any additional per-page-faxed costs (though you may have long-distance rates, depending on your faxing behavior and plans). In this way it scales for organizations sending/receiving high volumes of faxes.

Like hybrid faxing, this model also offers all the advanced routing, control and other features of GFI FaxMaker software. It does require the purchase and maintenance of infrastructure such as a VoIP phone system or gateway and phone service. For healthcare institutions, the hardware option may have disaster recovery implications, requiring back-ups to be ready for hardware components.



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Online faxing

Online faxing is an all-in-one internet-based faxing service that does not require the installation of phone lines, modems, fax boards or additional software. You can send and receive faxes through email, typically metered on a per-page basis.

GFI FaxMaker Online is an example of an online faxing service. Some of its specific features include the ability to have as many users as you require, customization of cover pages, standard fax routing to email based on the destination fax number, and reporting on faxes delivered/failed as well as other standard reports.

The benefit of online faxing is simplicity. You have no moving parts or investment whatsoever—you are contracting a service for your faxing. Organizations with faxing complexity—due to routing, volume, numbers of recipients or destinations, or other factors—would need to evaluate the suitability of this model.



Email-to-fax economics

A new fax machine can cost \$100 to \$500. If you are an occasional faxer of healthcare information, you may find the basic fax machine, monitored appropriately, is an adequate fit. However, you will face the inefficiency, compliance, and other issues articulated above.

If your faxing requirements exceed this volume, and you start to consider the need for multiple fax machines (some healthcare facilities have hundreds of machines), a centrally available email-to-fax service makes more sense. For instance, all of the various physical fax machines are unlikely to share a common address book (or even be the same model). Upkeeping the contact information (let alone the physical supplies of paper and toner) becomes additional tasks on an over-burdened workforce.

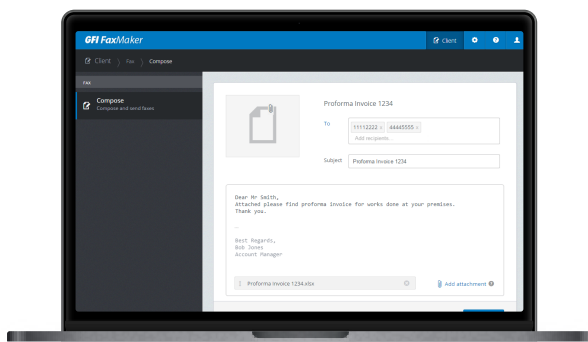
The other alternative to consider for occasional-to-small-volume faxing is online faxing. In this model, you pay a per-page-sent/received fee, usually based on a monthly limit. These are typically in the range of \$120 - \$180 per year for a single user sending and receiving a combined total of two to four or five faxes per day (about 500 pages/month). Higher volume faxing costs more; but the per page cost, per month decreases.

GFI FaxMaker has customers of every size and requirement. For instance, one customer averaged 920 inbound and 720 outbound faxes per day. They reported significant productivity gains through the packaging of supporting medical documentation into a single outbound response.

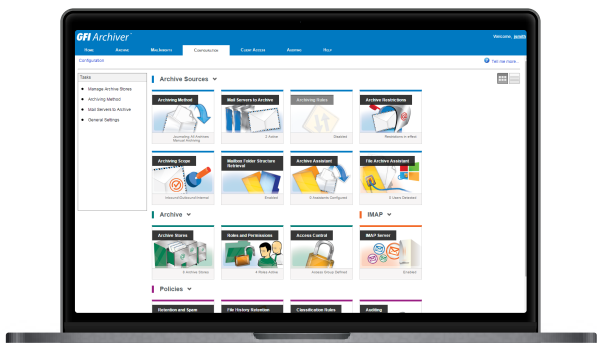
Even if you are not sending such a large volume of faxes, GFI FaxMaker with GFI Archiver in a hybrid or hardware model will help you gain efficiency, better secure the people and entrusted to you, and take pressure off your bottom line.⁷

⑦ <https://www.gfi.com/products-and-solutions/email-and-messaging-solutions/gfi-faxmaker/resources/case-studies/windsor>

GFI FaxMaker and GFI Archiver are available together through GFI Unlimited. The cost of the two products together with GFI Unlimited is less than if you bought them separately. GFI Unlimited is a cost-saving option for healthcare organizations who need to fax within compliance regulations and ensure they keep their records secure and searchable for legally mandated periods of time.



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