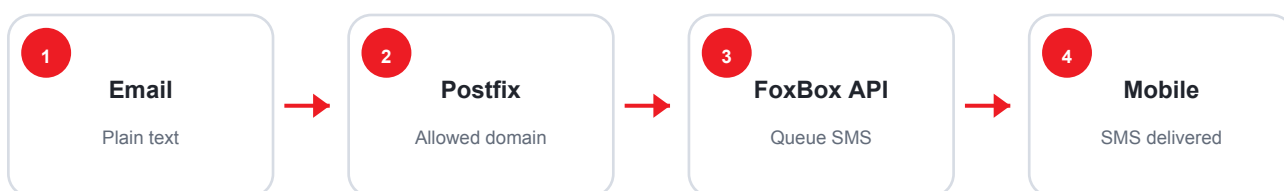




Email-to-SMS Gateway

Deployment and User Guide

JRC-compatible package with configurable domains, network access, TLS, mailbox, and FoxBox API settings.



Purpose

This package receives email for one or more configured gateway domains, extracts the destination mobile number from the From address, and submits the email body to FoxBox as SMS.

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Audience	FoxBox administrators and end users
Platform	Debian/Ubuntu host with systemd and FoxBox/Highway Web Services

How the gateway works

The package preserves the JRC legacy addressing convention. Postfix accepts messages only for configured virtual domains and only from allowed SMTP clients. Procmail passes a copy to the parser; the original is retained in Maildir.

Email field	Meaning	Example
From	The local part before @ becomes the destination mobile number.	+491701234567@corp.example
To	Any local part at a configured gateway domain.	foxbox@sms-gw.jrc.org
Subject	Required for processing; not used as SMS text.	Service update
Body	First five plain-text lines, joined with spaces.	Maintenance starts at 18:00.

Number validation

Punctuation is removed from the From local part. The normalized destination must contain 8 to 15 digits. Configure FOXBOX_ALLOWED_FROM_DOMAINS to reject unapproved From domains.

End-user procedure

- 1 Create a plain-text email
Disable automatic signatures, HTML formatting, attachments, and reply history.
- 2 Select a number-based From alias
Use the full international destination number before the @ sign.
- 3 Send to the FoxBox gateway domain
Use the gateway address supplied by IT and include a non-empty Subject.
- 4 Verify delivery
Confirm the SMS on the handset and, if available, check the FoxBox outgoing report.

One email, one mobile

The packaged JRC parser derives one destination from each From address. Send a separate email for each mobile number.

Deployment prerequisites

Complete the following before running the installer. The script refuses configurations containing `CHANGE_ME`, documentation IP ranges, invalid gateway domains, unreadable TLS files, or an invalid-looking API token.

FoxBox / Highway

- ☐ Create a dedicated Web Services account for the mail gateway.
- ☐ Enable Web Services for that account and copy its token into `FOXBOX_API_TOKEN`.
- ☐ Give the account permission and credit to send SMS through the intended outbound gateway.
- ☐ Confirm `FOXBOX_API_URL` is reachable from the mail gateway host. The installer validates it with `op=cr` without sending an SMS.

Mail and operating system

- ☐ Use a supported Debian/Ubuntu host with root access, `apt`, `systemd`, and stable time/DNS.
- ☐ Choose a host FQDN and a local mail domain that resolve consistently.
- ☐ Provide a TLS certificate and private key readable by Postfix and Dovecot.
- ☐ Generate a long random local mailbox password; do not reuse an administrator password.
- ☐ Identify the exact corporate SMTP relay IP addresses or subnets allowed to connect.

No secrets are supplied

Both example configuration files contain placeholders only. Edit `gateway.conf` directly on the target server, set mode 0600, and never email or commit the completed file.

Package files

Path	Purpose
<code>config/gateway.conf.example</code>	Generic parameter template.
<code>config/gateway.conf.jrc-example</code>	Historical JRC domains with secrets removed.
<code>scripts/install-email-to-foxbox.sh</code>	Install, back up, configure, and validate services.
<code>scripts/email-to-foxbox.sh</code>	Parse email and call the FoxBox API.
<code>scripts/check-email-to-foxbox.sh</code>	Check services, maps, API authentication, ports, and logs.

Configure identity, mailbox, and domains

Copy one example to the package root as gateway.conf. All changes are made in that file before installation. The installer stores a protected copy at /etc/foxbox-email-to-sms.conf.

```
cp config/gateway.conf.jrc-example gateway.conf
chmod 600 gateway.conf
editor gateway.conf
```

Parameter	What to enter	Example / note
MAIL_USER	Local Unix mailbox account.	nas
MAIL_PASSWORD	New long random POP/IMAP password.	Never leave CHANGE_ME.
MAIL_HOME	Mailbox and lock-file directory.	/var/lib/nas
MAIL_HOSTNAME	FQDN of the FoxBox mail host.	mail2sms.company.internal
MAIL_DOMAIN	Local domain used for delivery to MAIL_USER.	company.internal
GATEWAY_DOMAINS	Bash array of domains accepted by Postfix.	One or more domains.

JRC domain example

```
GATEWAY_DOMAINS=(
"sms-gw.jrc.org"
"nomail.ec.europa.eu"
"ec.europa.eu"
"jrc.ec.europa.eu"
"asup.netapp.jrc"
"ems.netapp.jrc"
)
```

Domain scope

Each configured domain is a catch-all: every local part at that domain maps to the gateway mailbox. Do not add a broad corporate domain unless all mail for that domain is intentionally routed to FoxBox.

Configure DNS, mail routing, and network

Choose one mail-routing model. The corporate connector model is recommended for an internal gateway because it avoids exposing FoxBox SMTP to the public Internet.

Model	Required configuration	When to use
Corporate mail connector	Create a transport/connector for each GATEWAY_DOMAINS entry and route it to the FoxBox IP on TCP 25.	Internal Exchange, Postfix, or cloud relay with a private route.
DNS MX	Create A/AAAA for MAIL_HOSTNAME and MX for each gateway domain pointing to that host.	Only when direct SMTP delivery is deliberately supported.

Network parameters

Parameter	Effect	Recommended value
SMTP_LISTEN_INTERFACES	Postfix listener address: all or a specific local IP.	Specific service IP when practical.
SMTP_INET_PROTOCOLS	IPv4, IPv6, or all.	Match the routed network.
SMTP_ALLOWED_NETWORKS	Only these SMTP clients are accepted and trusted.	Loopback plus exact corporate relay IPs/subnets.
DOVECOT_LISTEN	POP3/IMAP listener addresses.	Loopback only unless remote mailbox access is required.

Firewall paths

- ☐ Allow inbound TCP 25 to FoxBox only from SMTP_ALLOWED_NETWORKS.
- ☐ Allow outbound HTTPS from FoxBox to FOXBOX_API_URL when the API is not local.
- ☐ Open TCP 993/995 only if remote IMAP/POP3S access is required; avoid exposing 110/143 without STARTTLS.
- ☐ If NAT is involved, route the mail connector to the translated FoxBox SMTP address and keep source IP preservation/allowlisting consistent.

Open-relay protection

The installer restricts SMTP clients, accepts only configured virtual domains, and sets default/relay transport to error. Do not broaden SMTP_ALLOWED_NETWORKS to 0.0.0.0/0 or ::/0.

Configure TLS, FoxBox API, and policy

Parameter	Purpose	Guidance
TLS_CERT_FILE	Certificate chain for Postfix/Dovecot.	Use the file for MAIL_HOSTNAME.
TLS_KEY_FILE	Matching private key.	Restrict permissions; never include it in this package.
FOXBOX_API_URL	Highway Web Services endpoint.	Usually https://127.0.0.1/index.php when local.
FOXBOX_API_USER	Dedicated Web Services username.	Avoid personal administrator accounts.
FOXBOX_API_TOKEN	Web Services token.	32+ characters; treat as a secret.
FOXBOX_INSECURE	Disable API certificate validation when set to 1.	Keep 0; use 1 only for reviewed local/self-signed deployments.
FOXBOX_MAX_LENGTH	Maximum body characters submitted.	765 preserves the JRC behavior.
FOXBOX_DRY_RUN	Parse and log without sending when 1.	Use temporarily during commissioning.
FOXBOX_ALLOWED_FROM_DOMAINS	Comma-separated From-domain allowlist.	Set corporate sender domains; empty accepts any.
ENABLE_FETCHMAIL	Enable legacy local POP3 polling.	0 unless the JRC legacy consumer is required.
FETCHMAIL_INTERVAL	Polling interval in seconds.	60 for the legacy profile.

TLS certificate replacement

The example points to the operating system's temporary snake-oil certificate. Replace it before production with a certificate trusted by your mail clients/relays and matching MAIL_HOSTNAME.

Generated runtime files

File	Contains
/etc/foxbox-email-to-sms.conf	Protected copy of the complete deployment configuration.
/etc/foxbox-sms.conf	Minimal API/parser runtime settings; root and mail-user access only.
/etc/postfix/virtual_domains	Accepted gateway-domain map.
/etc/postfix/virtual	Catch-all aliases to the local mailbox.
/var/lib/MAIL_USER/.procmailrc	Parser invocation and Maildir archive rule.

Install and validate

- 1** Review the configuration
Remove all CHANGE_ME and documentation values. Confirm domains, relay networks, TLS paths, API URL, account, token, and policy settings.

- 2** Run the installer
The installer creates timestamped backups before replacing mail and runtime configuration.

```
sudo scripts/install-email-to-foxbox.sh ./gateway.conf
```

- 3** Run the validation script
It checks systemd services, Postfix/Dovecot configuration, every virtual-domain map, API authentication, listening ports, and recent logs.

```
sudo scripts/check-email-to-foxbox.sh
```

- 4** Test routing
Send a short plain-text email using a permitted number-based From address to a configured gateway domain.

Expected validation results

- ☐ Postfix and Dovecot are active; Fetchmail is active only when enabled.
- ☐ Every GATEWAY_DOMAINS entry returns OK and has a catch-all alias.
- ☐ FoxBox API authentication returns status OK and error 0.
- ☐ TCP 25 listens only on the intended interface(s) and the firewall limits source networks.
- ☐ The gateway log records OK with destination, character count, queue, and SMS log ID.

Apply later changes

Edit the protected source configuration and rerun the installer. It is idempotent and creates a new backup. Avoid hand-editing generated Postfix maps or /etc/foxbox-sms.conf because the next run replaces them.

Troubleshooting and rollback

Symptom	Checks
SMTP connection rejected	Source IP must be in SMTP_ALLOWED_NETWORKS; verify firewall, connector target, listener interface, and protocol family.
Unknown gateway domain	Add the domain to GATEWAY_DOMAINS, rerun the installer, and update the mail connector or MX record.
Email archived but SMS not queued	Subject must exist; From must normalize to 8-15 digits; From domain must be allowed; body must not be empty.
API authentication fails	Verify FOXBOX_API_URL, dedicated username/token, Web Services enablement, TLS trust, and network reachability.
Wrong mobile receives SMS	The destination comes from From, not To. Verify every digit before @.
Unwanted SMS text	Use text/plain, remove signatures/HTML/reply history, and remember only the first five body lines are processed.
Duplicate or delayed behavior	Review Procmail, optional Fetchmail, Postfix queue, /var/log/email-to-foxbox.log, and /var/log/procmail.log.

Rollback

Each installer run prints a timestamped directory under /root/email-to-foxbox-backup-YYYYMMDD-HHMMSS. To roll back, stop the affected services, restore only the files saved in the chosen backup, rebuild Postfix maps when applicable, validate, then restart services.

```
sudo systemctl stop postfix dovecot fetchmail
# Restore the selected backed-up files to their original paths.
sudo postmap /etc/postfix/virtual_domains
sudo postmap /etc/postfix/virtual
sudo postfix check
sudo doveconf -n
sudo systemctl restart postfix dovecot
```

Do not delete backups during commissioning
Keep the pre-installation backup and the tested gateway.conf under restricted administrator control until production acceptance is complete.

Support information

Provide the send timestamp, sanitized From/To addresses, Subject, first words of the body, relevant gateway-log lines, Postfix queue status, and FoxBox SMS log ID. Never send mailbox passwords, API tokens, or private keys.

Production acceptance
Test every configured gateway domain, an allowed and a rejected source network, an allowed and a rejected From domain, a valid and invalid number, API failure behavior, and one real handset delivery.