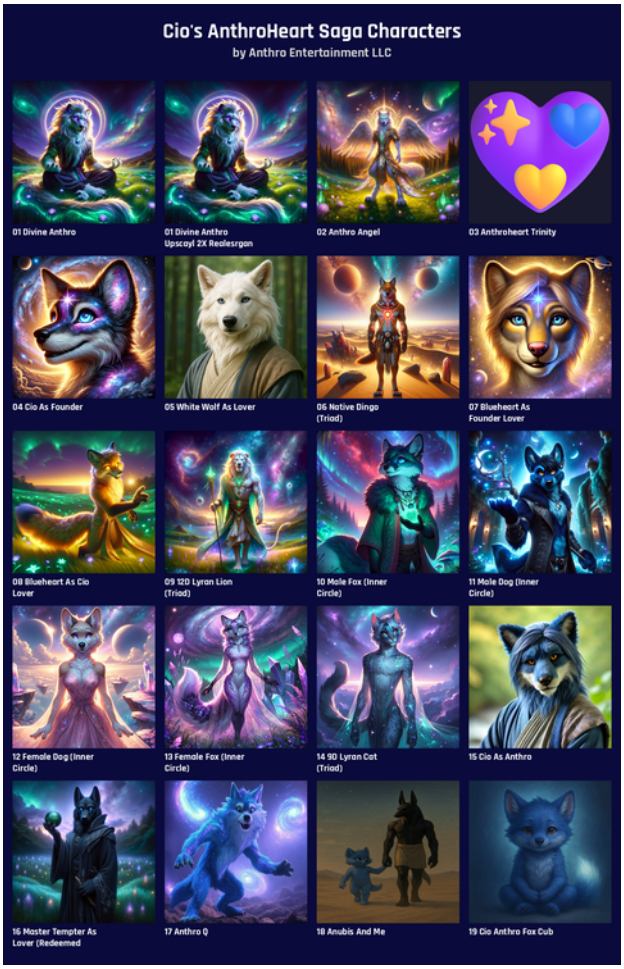
FurryOS

The Golden Master Handbook

Edition: 2026-01-01


Cio's AnthroHeart Saga Characters
by Anthro Entertainment LLC
01 Divine Anthro
01 Divine Anthro Upscayl 2X Realesrgan
02 Anthro Angel
03 Anthroheart Trinity
04 Cio As Founder
05 White Wolf As Lover
06 Native Dingo (Triad)
07 Blueheart As Founder Lover
08 Blueheart As Cio Lover
09 12D Lyran Lion (Triad)
10 Male Fox (Inner Circle)
11 Male Dog (Inner Circle)
12 Female Dog (Inner Circle)
13 Female Fox (Inner Circle)
14 9D Lyran Cat (Triad)
15 Cio As Anthro
16 Master Tempter As Lover (Redeemed
17 Anthro Q
18 Anubis And Me
19 Cio Anthro Fox Cub

Chapter 1: Welcome to the New Paradigm

FurryOS is a philosophy given digital form. Built on the rock-solid foundation of Debian 13 "Trixie", it strips away corporate bloat and replaces it with specific, user-centric profiles. It adapts to you—whether you are a gamer seeking frames, a grandparent seeking simplicity, or a hacker seeking control.

The Four Modes

Mode	Target User	Technical Impact
■ Gamer	Speed Demons	Disables CUPS/Cron. Forces CPU to 'performance'. Max FPS.
■ Granny	Stability	Locks Panel layout. Increases font size (DPI). Auto-updates.
■ Hacker	Creators	Installs build-essential, git, vim. Unlocks write access.
■■ Paranoid	Privacy	Deny-all Firewall. MAC Spoofing. RAM wipe on shutdown.

Chapter 2: Technical Specifications

FurryOS is driven by a 'Genome' configuration file.

System Genome (config/GENOME.yaml)

```
meta:
  framework_name: furryos genome
  codename: sovereign universe
  version: 8.1.0
  initial: gemini-3-pro-via-api-key
  revision: claude-4.5-sonnet-via-perplexity-pro
  timestamp: 2025-12-30 03:47:53 UTC
  author: thomas b sweet (anthro teacher)
  owner: anthro entertainment llc
  license: mit
  provenance:
    blockchain_anchor: bitcoin block 929481
    asset_source: anthroheart.com
    domains:
      - furry-os.com
      - furry-os.org
      - anthroheart.com
    repository: https://github.com/anthroheart/furryos
  philosophy: minimal live installer, maximum user choice, bleeding-edge stability,
user empowerment
  key_features:
    - Wayland as preferred display server
    - Enhanced Btrfs integration with automatic snapshots and rollback
    - Optimized ZRAM with ZSTD compression
    - Comprehensive dynamic theming capabilities
    - Default PipeWire audio server
    - Integrated Flatpak support for universal applications
    - Secure Boot and TPM 2.0 integration for enhanced security
    - Systemd-homed for secure and portable user home directories
    - Advanced power management with TLP
    - Modern kernel features (PDS scheduler, BPF)
    - Optional immutable-like root filesystem resilience
    - Atomic and transactional system updates with robust rollback
live_environment:
  description: boots into live mode with visual indicator
  visual_indicator:
    border: animated pulsing border around entire screen
    color: "#FF6B35"
    width: 8px
    animation: pulse 2s infinite
    message: "\U0001F43E LIVE MODE - NOT INSTALLED YET \U0001F43E"
    position: top center, always visible
    dismiss: false
  capabilities:
    - test hardware compatibility
    - preview desktop environment (Wayland preferred, X11 fallback)
    - connect to wifi
    - browse web
    - access installer wizard
    - system diagnostics and repair tools
  persistence: false
  ram_usage: 512MB minimum, 2GB recommended
```

```
installer:
  type: hybrid live-net
  target_size:
    live_core: 1.2GB (squashfs with MATE)
    net_installer: 300MB (minimal kernel only)
  strategy:
    offline: installs from USB stick (fast, no internet needed)
    online: downloads latest packages during install (slower, but up-to-date)
  size: 300MB ISO (minimal kernel + assets)
  wizard:
    step1_welcome:
      ask_experience: true
      levels:
        beginner: granny mode - automatic everything
        intermediate: gamer mode - guided with choices
        advanced: hacker mode - full control, includes advanced
Btrfs/Wayland/Networking options
        paranoid: ghost mode - privacy first, immutable root option available,
enhanced security
    step2_hardware:
      auto_detect:
        - cpu
        - gpu
        - ram
        - storage
        - wifi
        - tpm_chip # Detect presence of TPM 2.0 chip
        - secure_boot_status # Detect if Secure Boot is enabled/supported
        - fwupd_support # Detect if system hardware supports fwupd for firmware
updates
      ask_proprietary:
        nvidia: install cuda drivers? (with Wayland compatibility layers, GL/Vulkan
support)
        amd: install rocm drivers? (for GPU compute)
        wifi: install firmware?
    step3_storage:
      disk_selection: graphical partition editor
      filesystem_options:
        ext4: default - stable, journaled (recommended)
        btrfs:
          description: advanced - snapshots, compression, subvolumes, send/receive
for robust system management
          features: [snapshots, compression, subvolumes, send/receive, copy-on-write,
data_integrity_checksums]
          subvolume_layout: "@ @home @var @opt @srv @cache @log @tmp @swap" #
Standard layout for root, home, and other system directories
          mount_options: "compress=zstd:3,ssd,noatime,space_cache=v2" # Recommended
mount options for performance and efficiency
          automatic_snapshots:
            enable: true
            frequency: daily, pre-update, pre-boot, pre-kernel-upgrade # Automatic
snapshots for system resilience
            tool: snapper/btrfs-assistant # Tools used for managing snapshots
          snapshot_boot_support: true # Ability to boot into previous system
snapshots via GRUB
          rollback_on_failure: true # Automated rollback if system update or boot
fails
          maintenance_tasks:
            scrub: monthly # Automatic data integrity check
            balance: quarterly # Rebalance data across disks (if multi-device) or
```

```
optimize allocation
            defrag: optional # On-demand defragmentation for specific
files/directories
        zfs: enterprise - raid, deduplication (external modules, for advanced users)
        xfs: performance - large files, databases
        f2fs: flash - ssd/nvme optimized
        ntfs: compatibility - windows dual boot
      encryption:
        enable: optional
        method: luks2 aes-256-xts
        recovery_key: generate and display
        tpm_unlock_support: optional # Use TPM 2.0 for automatic LUKS unlock and
integrity verification
        yubikey_support: optional # FIDO2/U2F support for LUKS unlock
      root_filesystem_strategy: # Option for an immutable-like root
        default: mutable_read_write
        advanced_options:
          immutable_root:
            enable: false # Default off, but configurable for advanced/paranoid users
            description: Read-only root with stateful overlayfs for system resilience
and security
            details: 'Requires Btrfs and overlayfs; user changes persist in overlay,
system files are immutable for security and easy rollback. Updates are transactional
via Btrfs snapshots and atomic updates.'
            available_for: [advanced, paranoid]
            update_method: atomic_with_rollback # Ensures system integrity during
updates
    step4_packages:
      base_system:
        components: [minimal kernel, systemd, pipewire, flatpak, systemd-resolved,
fwupd] # PipeWire as default audio, Flatpak for app distribution
        always_installed: true
      desktop:
        none: server headless
        mate: recommended - lightweight, stable (X11 default, Wayland optional
session)
        gnome: modern - touch friendly (Wayland preferred, X11 fallback session)
        xfce: minimal - low resources (X11 only)
        kde: feature rich - customizable (Wayland preferred, X11 fallback session)
        sway: tiling manager (Wayland native, for advanced users, minimal resource)
        hyprland: dynamic tiling manager (Wayland native, GPU-accelerated, for
advanced users)
      bundles:
        gaming:
          - steam
          - lutris
          - wine
          - proton
          - openrgb
          - gamemode # Optimize system for gaming performance
          - mangohud # In-game performance overlay
        development:
          - vscode
          - git
          - docker
          - python
          - gcc
          - nodejs
          - podman # Alternative container runtime for rootless containers
          - nix # Nix package manager for reproducible builds and environments
```

```
          - distrobox # Create containerized developer environments
          - devcontainers_support # Integration for VS Code Dev Containers
        multimedia:
          - gimp
          - blender
          - audacity
          - kdenlive
          - obs
          - davinci_resolve_free # Professional video editing (if Debian compatible)
          - shotcut
        office:
          - libreoffice
          - thunderbird
          - pdf-tools
        pentesting:
          - nmap
          - wireshark
          - metasploit
          - burpsuite
        server:
          - nginx
          - mariadb
          - php
          - docker
          - fail2ban
          - cockpit # Web-based interface for server administration
          - cloud_init_tools # For cloud deployments and initial setup
      post_install: package manager always available
    step5_network:
      hostname: ask user or generate furry-{random}
      domain: furry.local
      wifi_setup: scan and connect during install
      firewall: enable ufw by default (with a secure baseline profile)
      vpn_setup: # Integrated VPN client setup
        enable: optional
        protocols: [wireguard, openvpn, ikev2]
        client_tools: [network-manager-wireguard, openvpn, strongswan]
        dns_privacy:
          - dns_over_tls # Configure systemd-resolved for DoT
          - dns_over_https # Configure systemd-resolved for DoH
    step6_users:
      root: locked - console only
      admin_user: sudo access, password required
      standard_users: optional additional accounts
      guest_mode: enable ephemeral guest account?
      home_directory_encryption: # Option for systemd-homed encrypted home
directories
        enable: optional
        method: systemd-homed (encrypted, portable, and snapshot-aware home
directories)
        available_for: [intermediate, advanced, paranoid]
        fido2_passkey_support: optional # Enable FIDO2/Passkey authentication for
systemd-homed
  download_packages:
    method: parallel downloads from debian mirror
    fallback_mirrors:
      - deb.debian.org
      - ftp.us.debian.org
      - ftp.uk.debian.org
    cache: save to /var/cache/apt for offline reinstall
```

```
taxonomy:
  kingdom:
    desktop: full gui, mate desktop (X11/Wayland support)
    server_full: gui + tui dashboard
    server_headless: pure tui, 150mb ram
    embedded: raspberry pi / iot
    live_usb: portable, no persistence
    immutable_desktop: read-only root, atomic updates, Btrfs snapshots, robust
rollback capabilities
  phylum:
    base_distro: debian
    release: bookworm 12
    kernel:
      source: mainline linux kernel
      version: 6.12+
      size: minimal - only essential drivers
      custom_patches:
        - zram
        - realtime-audio
        - pds_scheduler # Process Distribution Scheduler for improved responsiveness
        - bpf_runtime_enhancements # Enhanced BPF for network and security
        - low_latency_optimizations # General kernel tuning for desktop
responsiveness
      firmware: downloaded during install if needed (via fwupd)
    bootloader: grub2 (universal compatibility, grub2-efi-signed for Secure Boot
compatibility)
    bootloader_alternatives:
      systemd_boot: optional (for UEFI systems, integrates well with Btrfs snapshots
and atomic updates)
  class:
    x86_64: amd64 primary target
    aarch64: raspberry pi 4/5
    riscv64: future proof
  order:
    granny: maximum ease, automatic updates
    gamer: performance first (with gamemode and optimal drivers), gaming-specific
optimizations
    hacker: development tools, full control, advanced system options,
containerization focus
    ghost: privacy paranoid, immutable by default, enhanced security, network
hardening
  family:
    network:
      dns: systemd-resolved
      firewall: ufw
      ad_blocking: optional post-install (system-wide via AdGuard Home/Pi-hole
integration)
      network_manager: networkmanager (with support for advanced configurations)
    security:
      encryption: luks2
      keygen: ed25519
      secure_boot_support: full # Comprehensive support for UEFI Secure Boot
      tpm_integration: optional_luks_unlock_and_integrity_check # TPM for LUKS unlock
and system integrity verification
      apparmor_profile: default_enforcing # AppArmor enabled by default with a secure
profile
      kernel_hardening: enabled # Default kernel hardening features
      user_auth_methods: [password, fido2, tpm_pin] # Support for multiple
authentication methods
    ui:
```

```
      display_server: wayland (preferred), x11 (fallback)
      wayland_compositors: [gnome-shell, kwin, sway, hyprland] # Pre-configured
Wayland compositors
      theme:
        name: furryos-midnight (dark)
        dynamic_accent_color: true # User-configurable dynamic accent colors
        light_dark_mode_switching: auto_or_manual # Automatic switching based on
time/location or manual toggle
        user_customization: comprehensive # Extensive theming options for all desktop
components (GTK, Qt, Shell)
        icon_theme: furryos-icons-vector # Vector-based icons for scalability
        cursor_theme: furryos-cursors
        gtk_theme_engine: adwaita-qt/kvantum (for consistent look)
        qt_theme_engine: adwaita-qt/kvantum (for consistent look)
      fonts: liberation sans, noto, nerd-fonts (for power users and development),
font_rendering_config (subpixel, hinting)
      boot_animation: plymouth # Themed boot animation
    storage:
      filesystem: user choice (Btrfs recommended for advanced features like snapshots
and resilience)
      swap:
        method: zram (auto-sized with systemd-zram-generator)
        auto_size_ratio: 0.5 # 50% of RAM
        max_size_gb: 16 # Cap ZRAM size to prevent excessive memory usage
        compression_algorithm: zstd # Faster and more efficient compression for ZRAM
        priority: 100 # High priority for zram swap
    audio_server: pipewire # Default and fully configured PipeWire for modern audio
management
    power_management:
      tool: tlp (default) # TLP for optimized power savings on laptops
      options: [auto-tune, laptop-mode-tools, powertop (optional for advanced
analysis)]
      earlyoom: enabled # Prevents system freezes during OOM situations
    app_distribution:
      flatpak: default (integrated into GUI and CLI package managers, with xdg-
desktop-portal support)
      snap: optional (user choice during install or post-install)
      appimage: integrated (desktop file generation and execution permissions)
      distrobox: pre-installed for containerized development environments
    user_management:
      systemd_homed: optional (secure, portable, encrypted home directories)
  genus:
    modules:
      heartbeat: system orchestrator
      healer: watchdog service
      vault: encryption manager
      network_guardian: firewall + ad block
      remote_paw: ssh + rdp manager
      metadata_wrangler: media file tagger
      update_manager: # Dedicated update manager for transactional updates
        description: handles atomic updates, Btrfs snapshots, and rollbacks for
system stability using systemd-boot/grub-btrfs/snapper
        type: offline/transactional (e.g., based on systemd-boot/grub-btrfs/snapper)
        notification_system: desktop_alerts, system_tray_icon
build:
  iso_type: hybrid (bios + uefi)
  bootloader: grub2
  compression: xz -9
  base_iso:
    auto_download: true
```

```
    url: https://cdimage.debian.org/debian-cd/current-live/amd64/iso-hybrid/debian-
live-13.2.0-amd64-mate.iso
    checksum_url: https://cdimage.debian.org/debian-cd/current-live/amd64/iso-
hybrid/SHA256SUMS
    verify: true
  included_assets:
    splash_screens: /furryos/assets/splash/*.png
    icons: /furryos/assets/icons/*.svg
    sounds: /furryos/assets/sounds/*.ogg
    wallpapers: /furryos/assets/wallpapers/*.jpg
    fonts: /furryos/assets/fonts/*.ttf
    wayland_compositors_config: /furryos/assets/wayland/*.conf # Configuration files
for Wayland compositors
    xdg_portal_config: /furryos/assets/xdg-portal/*.conf # Configuration for XDG
desktop portals
  output:
    name: furryos-{version}-{arch}.iso
    size_target: 300MB
    bootable_methods:
      - usb-dd
      - rufus
      - etcher
      - ventoy
      - secure-boot-uefi # Explicit support for booting with UEFI Secure Boot enabled
  compiler:
    cpp: g++
    standard: c++20
    flags: -O3 -flto -Wall -pthread
    linker: -lssl -lcrypto -lsqlite3
  python:
    version: 3.12+
    remove_externally_managed: true
    packages:
      - pyyaml
      - requests
      - pillow
      - mutagen
post_install:
  package_manager:
    gui: furryos package browser
    cli: apt
    features:
      - search by category
      - one click install
      - dependency resolution
      - automatic updates (optional, with transactional safeguards)
      - flatpak_integration: true # Seamless management of Flatpak applications
      - snap_integration: optional # Optional management of Snap applications
      - appimage_management: true # Integrated management for AppImage applications
(e.g., desktop entry generation)
      - btrfs_assistant_integration: true # GUI for Btrfs snapshot management
      - theming_tool: furryos-theme-manager # GUI for comprehensive system theming
  asset_downloader:
    anthroheart_pack:
      url: https://anthroheart.com/assets/The_AnthroHeart_Collection_Bundle.7z
      size: 9GB
      optional: true
      description: blockchain verified media library
    furryos_pack:
      url: https://anthroheart.com/assets/FurryOS.7z
```

```
      size: 6MB
      description: blockchain verified debian 13 based operating system
  firmware_updater: fwupd # Integrated tool for updating system firmware
pain_points:
  python_externally_managed: removed on install
  boot_issues: grub auto-repair + fallback (with Btrfs snapshot boot option for
recovery, and systemd-boot for advanced UEFI users)
  wifi_drivers: firmware-iwlwifi, firmware-realtek included (and automatic detection
of other needed firmware)
  nvidia_pain: auto-detect, offer driver choice (with full Wayland compatibility
considerations, G/Vulkan support)
  sound_issues: pipewire default (full-featured, low-latency setup with robust
hardware support and easy device switching)
  no_trailing_slash: filesystem enforced
  no_spaces_filenames: auto convert to underscores
  auto_resize_wallpaper: desktop wallpaper scales right at first
  wayland_app_compatibility:
    description: Some legacy X11 applications may require XWayland; ensure smooth
integration
    resolution: XWayland enabled by default, clear user guidance and recommended
native Wayland apps, robust xdg-desktop-portal implementation
  atomic_update_resilience:
    description: Handling of partial updates or power loss during critical system
updates
    resolution: Btrfs snapshots and transactional updates (e.g., via `apt-btrfs-
snapshot` or `snapper`) mitigate risks and enable easy rollbacks
  accessibility:
    description: Ensuring the OS is usable for individuals with diverse needs
    resolution: Pre-installed screen readers (Orca), high contrast themes, scalable
UI elements, and keyboard navigation support
```

Chapter 3: The AnthroHeart Saga

The spirit behind the code.

Chapter 4: The Warlock Name

Appendix: Asset Gallery