KANARDIA

KanardiaCloud

User Manual

Version 1.0

Kanardia d.o.o.

August 21, 2025

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Document Information

Document Version: 1.0
Last Updated: August 21, 2025
Document Type: User Manual

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Chapter 1

Introduction

1.1 About KanardiaCloud

KanardiaCloud is a comprehensive cloud-based platform designed for aviation professionals and pilots. It provides a unified interface for managing flight-related data, including device synchronization, digital checklists, instrument layouts, logbook entries, and approach charts.

1.1.1 Key Features

- **Device Management**: Seamlessly sync with Kanardia avionics devices
- **Digital Checklists**: Create, manage, and print professional aviation checklists
- **Instrument Layouts**: Design custom instrument panel configurations
- **Electronic Logbook**: Comprehensive flight logging with automatic data synchronization
- **Approach Charts**: Store and organize airport approach procedures
- **Cloud Synchronization**: Real-time data sync across multiple devices
- **Multi-User Support**: Secure user authentication and data isolation

1.1.2 System Requirements

Component	Requirement
Web Browser	Chrome 90+, Firefox 88+, Safari 14+, Edge 90+
Internet Connection	Broadband connection required
Screen Resolution	1024x768 minimum, 1920x1080 recommended
Operating System	Any modern OS with web browser support
JavaScript	Must be enabled

Table 1.1: System Requirements for KanardiaCloud

1.1.3 Supported Devices

KanardiaCloud is compatible with the following Kanardia aviation devices:

- **NESIS III**: Advanced flight management system
- **NESIS IV**: Latest generation flight computer
- **KRT2 S**: VHF radio transceiver
- **KTX2**: Mode S transponder
- **Custom Integrations**: API support for third-party devices

1.2 Getting Help

1.2.1 Documentation

This user manual provides comprehensive information about all KanardiaCloud features. Each chapter includes:

- Step-by-step instructions
- Screenshots and visual guides
- Best practices and tips
- Troubleshooting information

1.2.2 Technical Support

For technical support and assistance:

- **Email**: support@kanardia.com
- **Phone**: +386 5 365 46 70
- **Web**: Create a support ticket at `https://support.kanardia.com`
- **Hours**: Monday - Friday, 8:00 AM - 6:00 PM CET

1.2.3 Training and Certification

Kanardia offers comprehensive training programs for aviation professionals:

- Online training modules
- Certification programs
- Custom training for organizations
- Webinar sessions

1.3 Safety and Compliance

Important Safety Notice: KanardiaCloud is designed as a supplementary tool for flight planning and management. It should not be used as the primary source of navigation or safety-critical information during flight operations. Always verify information with official aviation sources and follow standard operating procedures.

1.3.1 Data Security

KanardiaCloud implements industry-standard security measures:

- SSL/TLS encryption for all data transmission
- Secure user authentication with multi-factor options
- Regular security audits and updates
- GDPR compliance for European users
- Data backup and disaster recovery procedures

1.3.2 Privacy Policy

Your privacy is important to us. KanardiaCloud:

- Collects only necessary operational data
- Does not share personal data with third parties
- Provides user control over data retention
- Complies with international privacy regulations

For complete privacy policy details, visit: https://kanardia.com/privacy

Chapter 2

Getting Started

2.1 Account Setup

2.1.1 Creating Your Account

To begin using KanardiaCloud, you'll need to create an account:

1. Navigate to the KanardiaCloud login page
2. Click on the **"Register"** or **"Sign Up"** link
3. Fill in the required information:
    - Email address (must be valid)
    - Full name
    - Secure password
    - Confirm password
4. Accept the Terms of Service and Privacy Policy
5. Click **"Create Account"**
6. Check your email for verification instructions
7. Click the verification link to activate your account

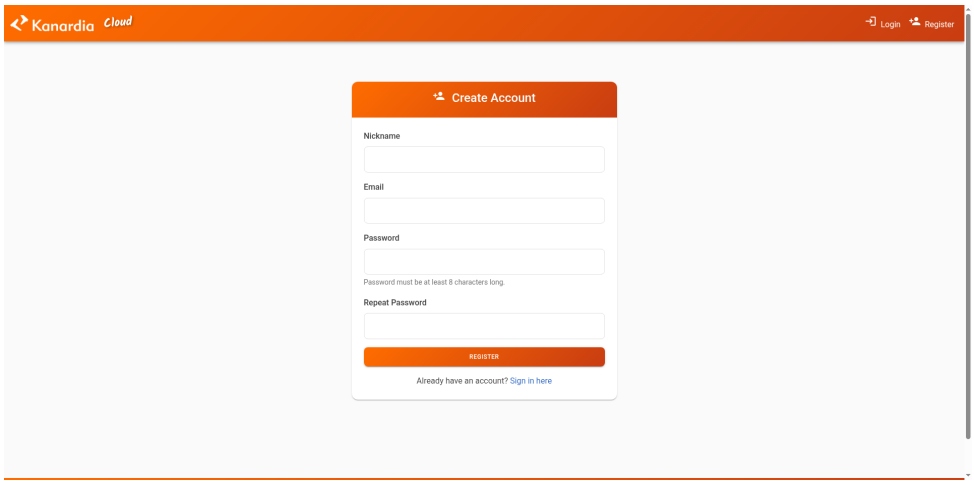

Figure 2.1: Account Registration Form

2.1.2 First Login

After account verification:

1. Return to the KanardiaCloud login page
2. Enter your email address and password
3. Click **"Sign In"**
4. Complete the initial setup wizard (if prompted)

2.2 Dashboard Overview

Upon successful login, you'll be greeted with the KanardiaCloud dashboard, which serves as your central command center.

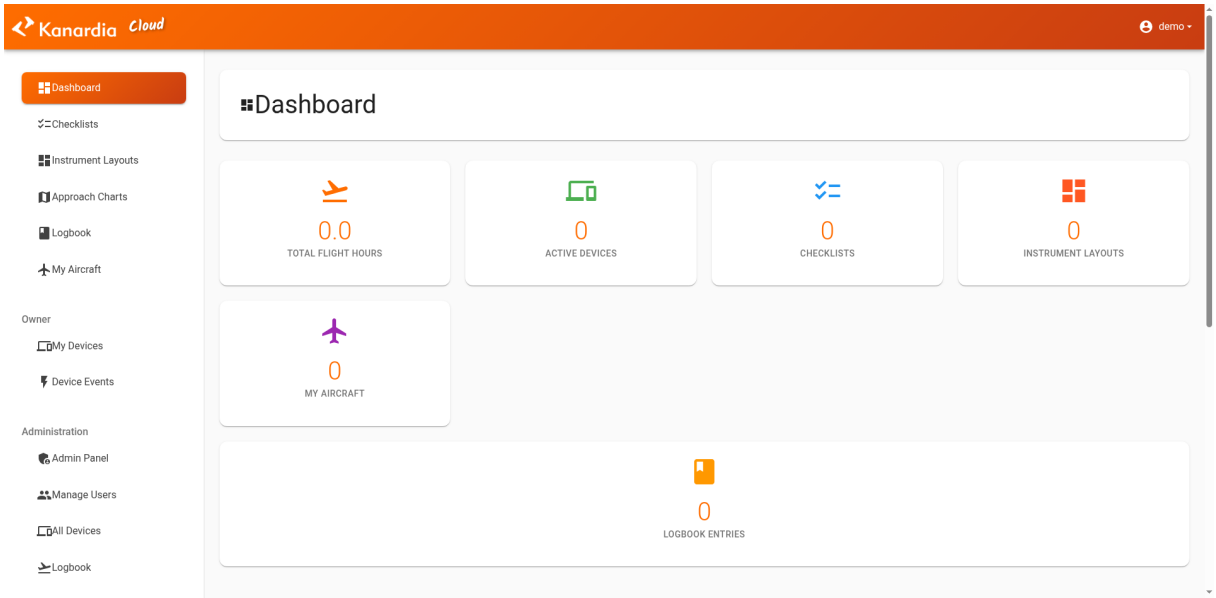

Figure 2.2: KanardiaCloud Dashboard Overview

2.2.1 Navigation Menu

The main navigation menu provides access to all KanardiaCloud features:

Menu Item	Description
Dashboard	Main overview with key metrics and recent activity
Devices	Manage and sync with Kanardia aviation devices
Checklists	Create, edit, and organize digital flight checklists
Instrument Layouts	Design custom instrument panel configurations
Logbook	Electronic flight logbook with automatic entries
Approach Charts	Store and manage airport approach procedures
Settings	User preferences and account configuration

Table 2.1: Main Navigation Menu Items

2.2.2 Quick Actions

The dashboard provides quick access to common tasks:

- **Add New Device**: Connect a new Kanardia device
- **Create Checklist**: Start building a new flight checklist
- **New Logbook Entry**: Manually add a flight record
- **Upload Chart**: Add new approach charts

2.3 User Interface Elements

2.3.1 Common Controls

KanardiaCloud uses consistent interface elements throughout the application:

Primary Buttons Orange buttons for main actions (Create, Save, Submit)

Secondary Buttons Gray buttons for alternative actions (Cancel, Back)

Icon Buttons Small buttons with icons for quick actions

Form Fields Input fields with validation and error messages

Data Tables Sortable and filterable tables for data display

2.3.2 Status Indicators

Various status indicators help you understand system states:

- **Green**: Active, online, or successful states
- **Orange**: Warning or attention required
- **Red**: Error, offline, or critical states
- **Gray**: Inactive, disabled, or neutral states

2.4 Basic Navigation

2.4.1 Moving Between Sections

- Use the main navigation menu on the left side
- Click the KanardiaCloud logo to return to the dashboard
- Use breadcrumb navigation for nested pages
- Browser back/forward buttons work as expected

2.4.2 Searching and Filtering

Most data views include search and filter capabilities:

1. Look for the search box (usually in the top-right of data tables)
2. Enter keywords to filter results in real-time
3. Use dropdown filters for specific criteria
4. Clear filters by clicking the "Clear" or "Reset" button

2.5 Getting Support

2.5.1 In-App Help

- Look for help icons (?) next to form fields
- Hover over tooltips for additional information
- Check the status bar for helpful hints

2.5.2 Keyboard Shortcuts

Common keyboard shortcuts available throughout the application:

Shortcut	Action
Ctrl + S	Save current form or changes
Ctrl + N	Create new item (context-dependent)
Ctrl + F	Focus search field
Esc	Cancel current action or close modal
Tab	Navigate between form fields

Table 2.2: Keyboard Shortcuts

2.6 Initial Configuration

2.6.1 User Profile Setup

Before using KanardiaCloud extensively, configure your user profile:

1. Navigate to **Settings** → **User Profile**
2. Update your personal information
3. Set your preferred date/time format
4. Configure notification preferences
5. Set your default timezone

2.6.2 Device Connection

If you have Kanardia devices to connect:

1. Go to **Devices** section
2. Click **"Add New Device"**
3. Follow the device-specific setup wizard
4. Test the connection
5. Configure sync preferences

2.6.3 Data Import

If you have existing flight data to import:

1. Navigate to the appropriate section (Logbook, Checklists, etc.)
2. Look for **"Import"** options
3. Follow the import wizard
4. Review and confirm imported data

Chapter 3

Dashboard

3.1 Dashboard Overview

The KanardiaCloud dashboard serves as your central control center, providing an at-a-glance view of all important information and quick access to frequently used features.

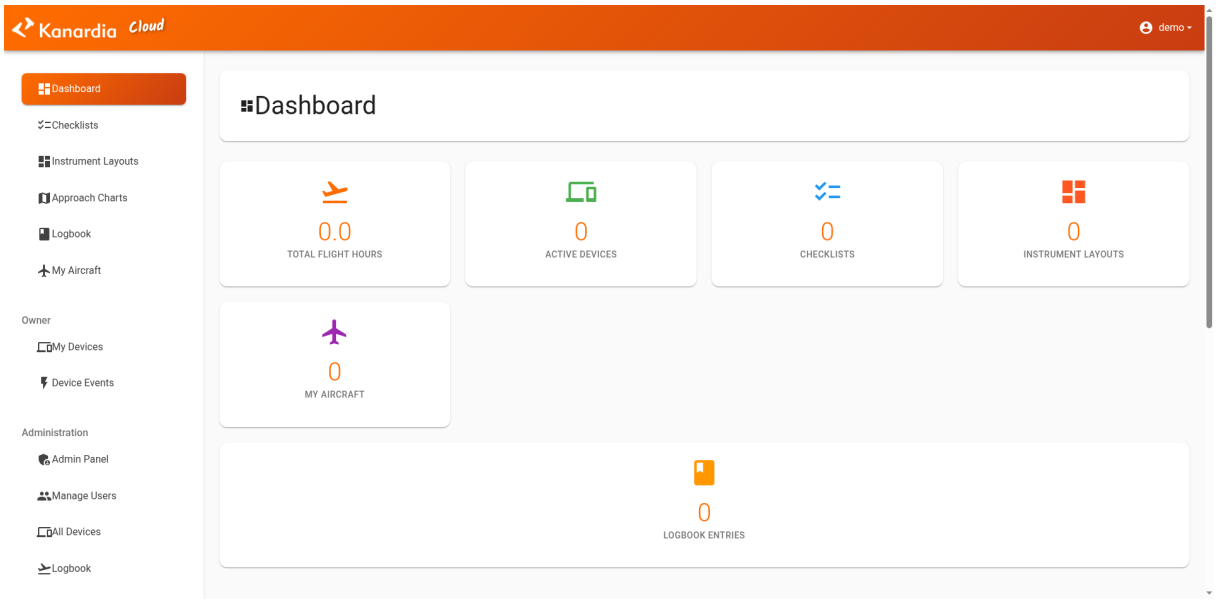

Figure 3.1: KanardiaCloud Main Dashboard

3.2 Dashboard Components

3.2.1 Header Navigation

The top header contains:

- **Logo**: Click to return to dashboard
- **Main Navigation**: Access all major sections
- **User Menu**: Profile, settings, and logout options
- **Notifications**: System alerts and updates

3.2.2 Quick Statistics

Key metrics displayed prominently:

Metric	Description
Connected Devices	Number of active Kanardia devices
Total Flight Hours	Cumulative flight time from logbook
Active Checklists	Number of available checklists
Recent Flights	Last 7 days flight activity
System Status	Overall system health indicator

Table 3.1: Dashboard Quick Statistics

3.2.3 Recent Activity

The activity feed shows:

- Recent logbook entries
- Checklist modifications
- Device synchronization events
- System notifications
- User actions and changes

3.2.4 Quick Actions Panel

One-click access to common tasks:

- Add new flight entry
- Create checklist
- Connect new device
- Upload approach chart
- Generate reports

3.3 Customization

3.3.1 Widget Configuration

Customize your dashboard by:

1. Clicking the settings icon in the top-right
2. Selecting which widgets to display
3. Arranging widget order

4. Setting refresh intervals
5. Configuring data ranges

3.3.2 Personal Preferences

Set your preferences for:

- Default date/time formats
- Measurement units (metric/imperial)
- Language settings
- Theme preferences
- Notification settings

Chapter 4

Device Management

4.1 Overview

The Device Management system allows you to connect, configure, and synchronize data with Kanardia aviation devices. This enables automatic data collection and seamless integration between your aircraft systems and KanardiaCloud.

4.2 Supported Devices

KanardiaCloud supports various Kanardia devices:

Device	Type	Capabilities
NESIS III	Flight Management	GPS tracking, flight planning, logbook
NESIS IV	Flight Computer	Advanced flight management, weather
KRT2 S	VHF Radio	Communication logs, frequency data
KTX2	Transponder	Mode S data, traffic information

Table 4.1: Supported Kanardia Devices

4.3 Adding Devices

4.3.1 Device Registration

To add a new device:

1. Navigate to **Devices**
2. Click **"Add New Device"**
3. Select device type
4. Enter device identification details

5. Configure connection settings
6. Test connection
7. Complete setup wizard

4.4 Device Synchronization

4.4.1 Automatic Sync

Devices synchronize automatically:

- Flight data and logbook entries
- GPS tracks and waypoints
- System configurations
- Usage statistics

4.4.2 Manual Sync

Force synchronization when needed:

1. Select device from list
2. Click **"Sync Now"**
3. Monitor sync progress
4. Review sync results

Chapter 5

Checklist Management

5.1 Overview

The Checklist Management system in KanardiaCloud allows pilots and aviation professionals to create, organize, and print professional digital checklists. These checklists can be synchronized with Kanardia devices and printed in various formats for cockpit use.

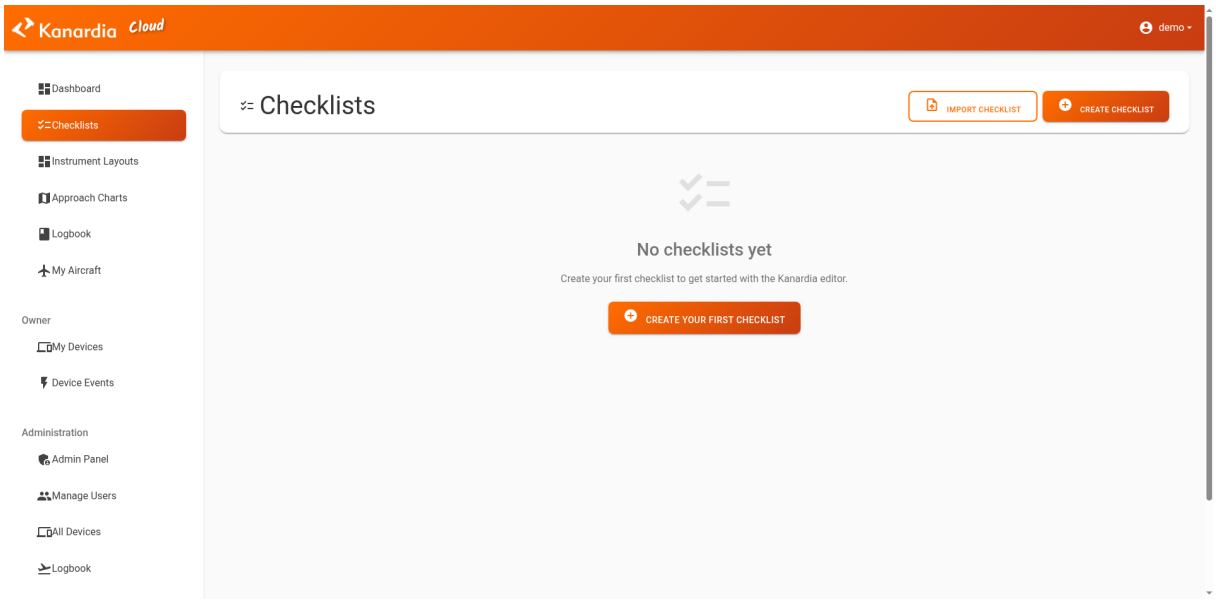

Figure 5.1: Checklist Management Dashboard

5.2 Creating Checklists

5.2.1 New Checklist Creation

To create a new checklist:

1. Navigate to **Checklists** in the main menu
2. Click the **"Create New Checklist"** button
3. Fill in the basic information:

- **Title**: Descriptive name for the checklist
- **Description**: Optional detailed description
- **Aircraft Type**: Associated aircraft model (if applicable)

4. Click **"Create Checklist"** to proceed to the editor

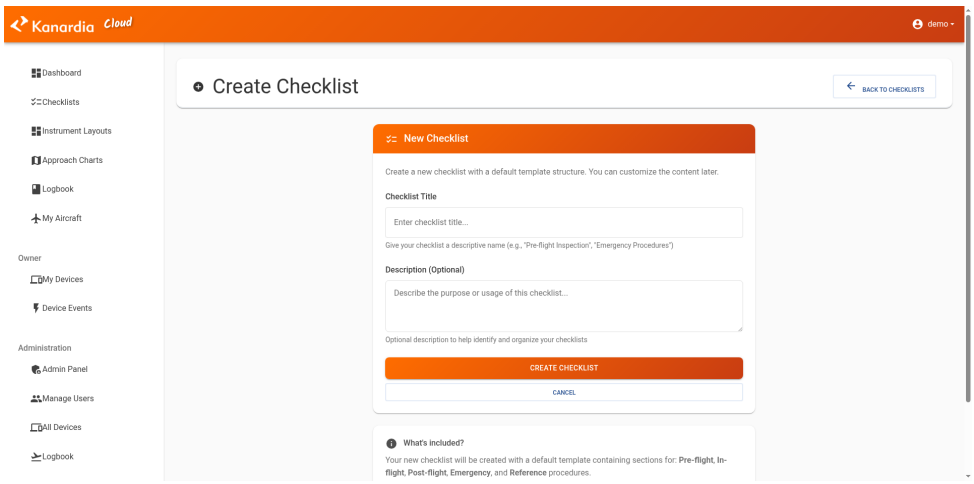

Figure 5.2: New Checklist Creation Form

5.2.2 Checklist Structure

KanardiaCloud checklists are organized hierarchically:

Root Top-level container for the entire checklist

Sections Major groupings (e.g., "Pre-flight", "Engine Start", "Landing")

Checklists Individual procedures within sections

Items Specific actions or checks within each checklist

5.3 Checklist Editor

5.3.1 Editor Interface

The checklist editor provides a comprehensive interface for building detailed checklists:

- **Tree View**: Hierarchical structure on the left
- **Properties Panel**: Item details on the right
- **Toolbar**: Quick actions and tools
- **Preview**: Real-time preview of changes

Figure 5.3: Checklist Editor Interface

5.3.2 Adding Sections and Items

To add new elements to your checklist:

1. **Adding a Section**:
   - Right-click on the root node or use the "Add Section" button
   - Enter the section name (e.g., "Pre-flight Inspection")
   - Set section properties if needed
2. **Adding a Checklist**:
   - Right-click on a section or use "Add Checklist"
   - Name the checklist (e.g., "External Inspection")
   - Configure checklist properties
3. **Adding Items**:
   - Right-click on a checklist or use "Add Item"
   - Enter the item title and action
   - Set item properties and responses

5.3.3 Item Properties

Each checklist item can be configured with:

Property	Description
Title	The main text of the checklist item
Action	Expected response or action to take
Type	Item type (check, action, warning, etc.)
Priority	Item importance level
Notes	Additional information or remarks
Voice	Text-to-speech pronunciation guide

Table 5.1: Checklist Item Properties

5.4 Checklist Import and Export

5.4.1 Supported Formats

KanardiaCloud supports various checklist formats:

- **Kanardia CKL**: Native Kanardia checklist format
- **JSON**: Standard JSON format for data exchange
- **XML**: Structured XML format
- **CSV**: Simple comma-separated values (basic import only)

5.4.2 Importing Checklists

To import an existing checklist:

1. Go to **Checklists** → **Import**
2. Select the file format
3. Choose the checklist file
4. Review the import preview
5. Confirm the import
6. Edit as needed using the checklist editor

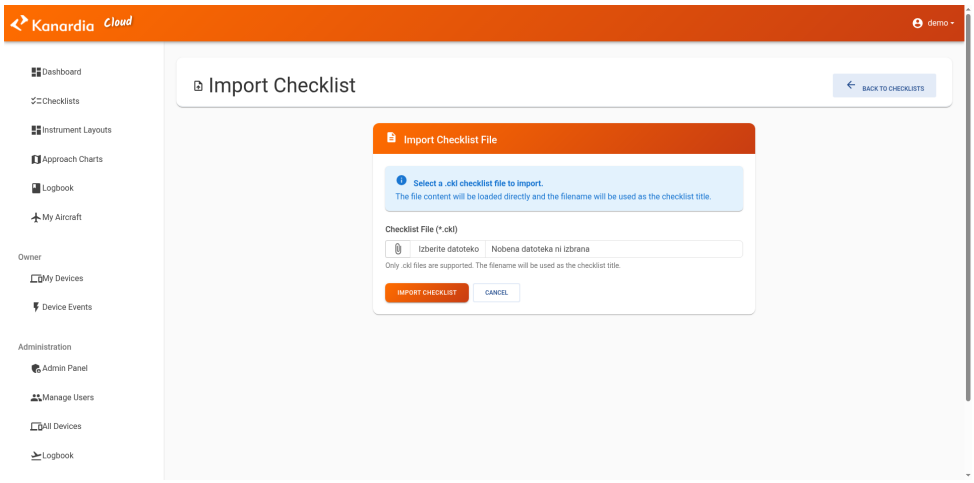

Figure 5.4: Checklist Import Interface

5.4.3 Exporting Checklists

To export a checklist:

1. Open the checklist you want to export
2. Click the **"Export"** button in the toolbar
3. Select the desired format
4. Choose export options
5. Download the exported file

5.5 Printable Checklists

5.5.1 Print Formats

KanardiaCloud offers two optimized print formats:

Standard Format

- Full page layout with headers and metadata
- Section titles prominently displayed
- Two-column layout for efficient paper use
- Complete checklist information included

Minimal Format

- Compact layout without headers
- All checklists on one page
- Section names shown on each card

- Optimized for cockpit reference

(a) Standard Print Format

(b) Minimal Print Format

Figure 5.5: Checklist Print Formats

5.5.2 Accessing Print Versions

To generate printable checklists:

1. Navigate to your checklist
2. Click the options menu (three dots)
3. Select **"Printable Version"**
4. Choose between Standard or Minimal format
5. Use browser print function or click **"Print Checklist"**

5.5.3 Print Optimization

Both print formats are optimized for:

- Standard A4 and Letter paper sizes
- Two-column layout for space efficiency
- Clear, readable fonts suitable for cockpit lighting
- Professional appearance with Kanardia branding
- Page breaks that avoid splitting checklists

5.6 Checklist Organization

5.6.1 Categories and Tagging

Organize your checklists using:

- **Categories**: Group by aircraft type, operation type, etc.
- **Tags**: Custom labels for flexible organization
- **Favorites**: Mark frequently used checklists
- **Recent**: Quick access to recently modified items

5.6.2 Search and Filtering

Find checklists quickly using:

- **Text Search**: Search titles and content
- **Category Filters**: Filter by assigned categories
- **Date Filters**: Show recently created or modified
- **Status Filters**: Filter by completion or approval status

5.7 Collaboration and Sharing

5.7.1 Sharing Checklists

Share checklists with team members:

1. Open the checklist to share
2. Click **"Share"** in the toolbar
3. Enter recipient email addresses
4. Set permission levels (view, edit, admin)
5. Add an optional message
6. Click **"Send Invitation"**

5.7.2 Version Control

KanardiaCloud maintains checklist versions:

- Automatic version history
- Compare different versions
- Restore previous versions
- Track changes and modifications
- Comment on changes

5.8 Best Practices

5.8.1 Checklist Design

Follow these guidelines for effective checklists:

- **Clear Language**: Use precise, unambiguous terms
- **Logical Flow**: Arrange items in operational sequence

- **Consistent Format**: Maintain uniform structure
- **Appropriate Length**: Keep individual checklists manageable
- **Regular Updates**: Review and update periodically

5.8.2 Naming Conventions

Use consistent naming for easy identification:

- Include aircraft type in title
- Use standard aviation terminology
- Follow company or organizational standards
- Include version numbers or dates

5.8.3 Testing and Validation

Before using checklists operationally:

- Review with experienced pilots
- Test in simulator environments
- Validate against official procedures
- Check for completeness and accuracy
- Obtain necessary approvals

5.9 Troubleshooting

5.9.1 Common Issues

Import Failures Check file format and encoding, ensure file is not corrupted

Print Layout Issues Verify browser print settings, try different browsers

Sync Problems Check device connection, verify account permissions

Missing Items Refresh page, check filter settings, verify data integrity

5.9.2 Getting Help

If you encounter issues with checklist management:

- Check the built-in help tooltips
- Review this user manual
- Contact support with specific error messages
- Provide checklist files for technical analysis

Chapter 6

Instrument Layouts

6.1 Overview

The Instrument Layout system allows you to design and configure custom instrument panel arrangements for different aircraft or flight scenarios. These layouts can be synchronized with compatible Kanardia displays.

6.2 Creating Layouts

6.2.1 New Layout Wizard

To create a new instrument layout:

1. Navigate to **Instrument Layouts**
2. Click **"Create New Layout"**
3. Enter layout details:
    - Title and description
    - Aircraft type or model
    - Display resolution
    - Layout category
4. Choose from templates or start blank
5. Proceed to the layout editor

6.3 Layout Editor

6.3.1 Editor Interface

The layout editor provides:

- Drag-and-drop instrument placement
- Real-time preview

- Instrument property configuration
- Grid snapping and alignment tools
- Zoom and pan controls

6.3.2 Available Instruments

Standard instrument types include:

- Primary flight display components
- Engine monitoring instruments
- Navigation displays
- Communication panels
- Custom gauges and indicators

6.4 Layout Management

6.4.1 Organization

Organize layouts by:

- Aircraft type
- Flight phase
- User preference
- Certification level

6.4.2 Sharing and Export

Share layouts with:

- Team members
- Aircraft operators
- Training organizations
- Device synchronization

Chapter 7

Electronic Logbook

7.1 Overview

The Electronic Logbook system automatically records and manages flight data from connected Kanardia devices, providing comprehensive flight tracking and regulatory compliance features.

7.2 Logbook Entries

7.2.1 Automatic Entry Creation

Flight entries are created automatically when:

- Aircraft engines start
- GPS tracking begins
- Flight parameters exceed thresholds
- Landing is detected

7.2.2 Manual Entry Creation

Add manual entries for:

- Training flights
- Ground instruction
- Simulator sessions
- Non-connected aircraft

7.3 Data Fields

7.3.1 Standard Fields

Each logbook entry includes:

Field	Description
Date	Flight date
Aircraft	Aircraft registration and type
Departure	Origin airport and time
Arrival	Destination airport and time
Flight Time	Total flight duration
Pilot in Command	PIC identification
Remarks	Additional notes and comments

Table 7.1: Standard Logbook Fields

7.3.2 Extended Data

Additional information captured:

- GPS flight tracks
- Engine parameters
- Weather conditions
- Fuel consumption
- Performance metrics

7.4 Reports and Analysis

7.4.1 Flight Reports

Generate various reports:

- Individual flight summaries
- Monthly/yearly totals
- Aircraft utilization
- Maintenance tracking
- Regulatory compliance

7.4.2 Export Options

Export data in formats:

- PDF reports
- Excel spreadsheets
- CSV data files
- Standard logbook formats

Chapter 8

Approach Charts

8.1 Overview

The Approach Charts system allows you to store, organize, and access airport approach procedures and charts. These can be synchronized with compatible Kanardia navigation systems for in-flight reference.

8.2 Chart Management

8.2.1 Uploading Charts

To add new approach charts:

1. Navigate to **Approach Charts**
2. Click **"Upload Chart"**
3. Select chart file (PDF, PNG, JPG supported)
4. Enter chart information:
    - Airport identifier
    - Approach type
    - Runway designation
    - Effective dates
5. Verify chart preview
6. Save chart to library

8.2.2 Chart Organization

Organize charts by:

- Airport or region
- Approach type (ILS, RNAV, VOR, etc.)

- Currency status
- Frequency of use

8.3 Chart Access

8.3.1 Search and Filter

Find charts quickly using:

- Airport identifier search
- Approach type filters
- Geographic region filters
- Date range filters

8.3.2 Chart Viewing

View charts with features:

- Zoom and pan controls
- Full-screen mode
- Rotation and orientation
- Annotation tools

8.4 Integration

8.4.1 Device Synchronization

Sync charts with:

- NESIS displays
- Portable devices
- Flight planning systems
- Navigation databases

Chapter 9

User Settings

9.1 Profile Management

9.1.1 Personal Information

Manage your profile settings:

- Full name and contact information
- Professional licenses and ratings
- Organization affiliation
- Profile picture

9.1.2 Account Security

Configure security settings:

- Password management
- Two-factor authentication
- Login session management
- Security notification preferences

9.2 Display Preferences

9.2.1 Regional Settings

Customize regional preferences:

Setting	Options
Date Format	DD/MM/YYYY, MM/DD/YYYY, YYYY-MM-DD
Time Format	12-hour, 24-hour
Units	Metric, Imperial, Mixed
Language	English, German, Slovenian
Timezone	User-selectable timezone

Table 9.1: Regional Settings Options

9.2.2 Interface Customization

Personalize your interface:

- Theme selection (Light, Dark, Auto)
- Color scheme preferences
- Font size adjustments
- Dashboard widget configuration
- Menu organization

9.3 Notification Settings

9.3.1 Email Notifications

Configure email alerts for:

- Device synchronization status
- System maintenance notifications
- Security alerts
- Data backup confirmations
- Shared content updates

9.3.2 In-App Notifications

Control in-application notifications:

- Real-time sync status
- Error and warning messages
- Feature updates
- Tips and suggestions

9.4 Data Management

9.4.1 Backup and Export

Manage your data:

- Automatic cloud backup
- Manual data export
- Selective data download
- Archive management

9.4.2 Privacy Controls

Control data sharing:

- Data sharing preferences
- Third-party integrations
- Analytics participation
- Content visibility settings

Chapter 10

Troubleshooting

10.1 Common Issues

10.1.1 Login Problems

Forgotten Password Use the "Forgot Password" link on login page

Account Locked Contact support if multiple login attempts fail

Email Verification Check spam folder for verification emails

Browser Issues Clear cache and cookies, try different browser

10.1.2 Device Connection Issues

Device Not Found Verify device is powered on and connected

Sync Failures Check network connection and device settings

Data Inconsistencies Force full synchronization from device menu

Outdated Firmware Update device firmware to latest version

10.1.3 Performance Issues

Slow Loading Check internet connection speed and stability

Browser Compatibility Use supported browser versions

Cache Issues Clear browser cache and refresh page

Memory Usage Close unnecessary browser tabs and applications

10.2 Error Messages

10.2.1 System Errors

Common error codes and solutions:

Error Code	Solution
ERR_001	Database connection issue - try again later
ERR_002	Invalid user credentials - check login details
ERR_003	File upload failed - verify file format and size
ERR_004	Device synchronization timeout - retry sync
ERR_005	Insufficient permissions - contact administrator

Table 10.1: Common Error Codes

10.3 Getting Support

10.3.1 Self-Help Resources

Before contacting support:

- Check this user manual
- Review online help documentation
- Search the knowledge base
- Try suggested troubleshooting steps

10.3.2 Contacting Support

When you need assistance:

1. Gather relevant information:
    - Error messages or codes
    - Steps to reproduce the issue
    - Browser and operating system details
    - Screenshot of the problem
2. Contact support via:
    - Email: support@kanardia.com
    - Phone: +386 5 365 46 70
    - Online support portal
3. Provide detailed problem description
4. Follow up on support ticket as needed

10.3.3 Emergency Support

For critical issues affecting flight operations:

- Use emergency support hotline
- Clearly identify safety implications
- Provide immediate contact information
- Follow emergency procedures in your organization

10.4 Best Practices

10.4.1 Preventive Measures

To minimize issues:

- Keep browsers updated to latest versions
- Regularly backup important data
- Use strong, unique passwords
- Monitor device firmware updates
- Report issues promptly

10.4.2 Data Recovery

In case of data loss:

- Check automatic backups
- Review recent sync logs
- Contact support immediately
- Avoid making changes until recovery

Chapter 11

API Reference

11.1 Overview

KanardiaCloud provides a RESTful API for third-party integrations and custom applications. This chapter covers the essential API endpoints and usage examples.

11.2 Authentication

11.2.1 API Key Authentication

To access the API:

1. Generate API key in user settings
2. Include key in request headers
3. Use HTTPS for all requests
4. Monitor usage and rate limits

Example request:

```
curl -X GET "https://api.kanardiacloud.com/v1/devices" \
     -H "Authorization: Bearer YOUR_API_KEY" \
     -H "Content-Type: application/json"
```

11.3 Core Endpoints

11.3.1 Device Management

Method	Endpoint	Description
GET	/api/v1/devices	List all devices
POST	/api/v1/devices	Add new device
GET	/api/v1/devices/{id}	Get device details
PUT	/api/v1/devices/{id}	Update device
DELETE	/api/v1/devices/{id}	Remove device

Table 11.1: Device Management API Endpoints

11.3.2 Logbook Management

Method	Endpoint	Description
GET	/api/v1/logbook	List logbook entries
POST	/api/v1/logbook	Create new entry
GET	/api/v1/logbook/{id}	Get entry details
PUT	/api/v1/logbook/{id}	Update entry
DELETE	/api/v1/logbook/{id}	Delete entry

Table 11.2: Logbook API Endpoints

11.3.3 Checklist Management

Method	Endpoint	Description
GET	/api/v1/checklists	List all checklists
POST	/api/v1/checklists	Create new checklist
GET	/api/v1/checklists/{id}	Get checklist details
PUT	/api/v1/checklists/{id}	Update checklist
DELETE	/api/v1/checklists/{id}	Delete checklist

Table 11.3: Checklist API Endpoints

11.4 Data Formats

11.4.1 Request/Response Format

All API endpoints use JSON format:

```
{
  "success": true,
  "data": {
    "id": 123,
    "name": "Example Device",
```

```
    "status": "active",
    "lastSync": "2025-08-21T10:30:00Z"
  },
  "message": "Operation completed successfully"
}
```

11.4.2 Error Handling

Error responses include:

```
{
  "success": false,
  "error": {
    "code": "INVALID_REQUEST",
    "message": "Required field 'name' is missing",
    "details": {
      "field": "name",
      "required": true
    }
  }
}
```

11.5 Rate Limits

11.5.1 Usage Limits

API usage is subject to rate limits:

Plan	Requests per Hour
Basic	1,000
Professional	5,000
Enterprise	20,000

Table 11.4: API Rate Limits

11.5.2 Rate Limit Headers

Response headers include:

- `X-RateLimit-Limit`: Maximum requests allowed
- `X-RateLimit-Remaining`: Requests remaining in current window
- `X-RateLimit-Reset`: Time when limit resets

11.6 SDK and Libraries

11.6.1 Official SDKs

Kanardia provides SDKs for:

- Python
- JavaScript/Node.js
- Java
- C#/.NET

11.6.2 Community Libraries

Third-party libraries available for:

- PHP
- Ruby
- Go
- Swift

Appendix A

Glossary and Abbreviations

A.1 Aviation Terms

AGL Above Ground Level

AHRS Attitude and Heading Reference System

ARINC Aeronautical Radio, Incorporated standard

EFIS Electronic Flight Information System

FADEC Full Authority Digital Engine Control

FMS Flight Management System

GNSS Global Navigation Satellite System

IFR Instrument Flight Rules

MSL Mean Sea Level

RNAV Area Navigation

VFR Visual Flight Rules

WAAS Wide Area Augmentation System

A.2 Technical Terms

API Application Programming Interface

CSV Comma-Separated Values

HTTPS HyperText Transfer Protocol Secure

JSON JavaScript Object Notation

PDF Portable Document Format

REST Representational State Transfer

SSL Secure Sockets Layer

TLS Transport Layer Security

URL Uniform Resource Locator

XML eXtensible Markup Language

A.3 Kanardia Terminology

CKL Kanardia Checklist format

NESIS Kanardia's Electronic Flight Information System

KRT2 Kanardia VHF radio transceiver

KTX2 Kanardia Mode S transponder

ThingsBoard IoT platform used for device management

Appendix B

File Formats and Specifications

B.1 Checklist File Formats

B.1.1 Kanardia CKL Format

The native Kanardia checklist format uses a hierarchical structure:

```
{
  "Root": {
    "Children": [
      {
        "Type": 0,
        "Name": "Pre-flight",
        "Children": [
          {
            "Type": 1,
            "Name": "External Inspection",
            "Items": [
              {
                "Title": "Aircraft General Condition",
                "Action": "CHECK"
              }
            ]
          }
        ]
      }
    ]
  },
  "Language": "en-gb",
  "Voice": "Default"
}
```

B.1.2 Type Definitions

Type Value	Element Type
0	Section (container for checklists)
1	Checklist (container for items)
2	Item (individual checklist step)

Table B.1: CKL Element Types

B.2 Import/Export Formats

B.2.1 Supported File Types

Format	Extension	Description
Kanardia CKL	.ckl	Native checklist format
JSON	.json	Standard JSON format
XML	.xml	Structured XML data
CSV	.csv	Comma-separated values
PDF	.pdf	Portable document (charts)
PNG	.png	Portable network graphics
JPEG	.jpg, .jpeg	Joint photographic experts group

Table B.2: Supported File Formats

B.3 Data Schema Specifications

B.3.1 Device Data Schema

Device information structure:

```
{
  "deviceId": "string",
  "name": "string",
  "type": "NESIS_III|NESIS_IV|KRT2|KTX2",
  "serialNumber": "string",
  "firmwareVersion": "string",
  "status": "active|inactive|error",
  "lastSync": "ISO 8601 datetime",
  "configuration": {
    "syncInterval": "number (minutes)",
    "dataTypes": ["logbook", "checklists", "layouts"]
  }
}
```

B.3.2 Logbook Entry Schema

Flight entry data structure:

```
{
  "entryId": "string",
  "date": "ISO 8601 date",
  "aircraft": {
    "registration": "string",
    "type": "string"
  },
  "departure": {
    "airport": "ICAO code",
    "time": "ISO 8601 datetime"
  },
  "arrival": {
    "airport": "ICAO code",
    "time": "ISO 8601 datetime"
  },
  "flightTime": "number (hours)",
  "picTime": "number (hours)",
  "remarks": "string"
}
```