

PHASE 6: Deploy osTicket on Docker (Windows Host)

This documentation outlines the step-by-step deployment of a real-world IT helpdesk system (osTicket) on a Windows machine using Docker Desktop. This local deployment simulates enterprise-level ticketing operations and prepares the system for integration with Exchange Online (ithelpdesk@dipeshcorp.onmicrosoft.com).

Part 1: Deploy osTicket with Manual Stack (Apache, PHP, MySQL) + Exchange Online Integration


This phase implements an open-source IT ticketing solution (osTicket) on a self-hosted Ubuntu 24.04 LTS virtual machine using Apache, PHP, and MySQL. It is integrated with a Microsoft Exchange Online shared mailbox (ithelpdesk@dipeshcorp.onmicrosoft.com) to simulate a real-world helpdesk system with email-based ticket automation.

Actions Completed:

Step 1: Create Ubuntu VM and Enable Secure Boot Compatibility

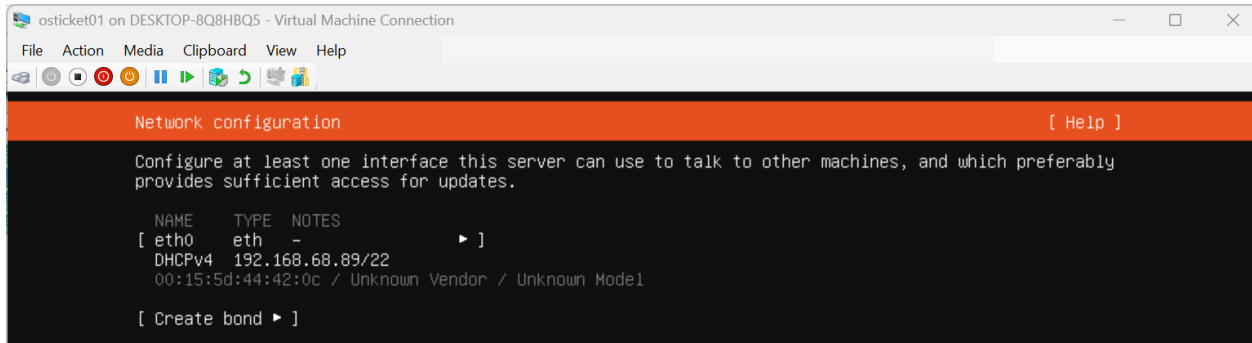
Deploy a VM running Ubuntu 24.04 LTS and prepare for secure boot under Microsoft UEFI.

- Hyper-V or VirtualBox → Create new VM
- OS: Ubuntu Server 24.04 LTS
- RAM: 4 GB, CPU: 2 cores, Disk: 25+ GB
- In VM settings:
 - Go to: Security > Enable Secure Boot
 - Select: Microsoft UEFI Certificate Authority (not default template)

 Install Ubuntu Server normally.

- Follow guided install steps
- Set hostname (e.g., osticket)
- Choose static or DHCP IP

- At software selection screen → Select: Docker (optional) or none (we'll install Apache manually)



Step 2: Install Required Software Packages

Install Apache, PHP, MySQL, and PHP extensions needed by osTicket.

1. `sudo apt update && sudo apt upgrade -y`
2. `sudo apt install apache2 mysql-server php libapache2-mod-php php-mysql php-imap`
3. `php-mbstring php-xml php-gd php-curl php-zip unzip -y`

✓ Installed:

- Apache2 → Web server
- MySQL → Database

PHP 8.x and modules → Server-side scripting

Step 3: Download and Extract osTicket

Fetch latest osTicket release from GitHub and move to Apache root.

1. `cd /tmp`
2. `wget https://github.com/osTicket/osTicket/releases/download/v1.17.4.1/osTicket-v1.17.4.1.zip`
3. `unzip osTicket-v1.17.4.1.zip`
4. `sudo mv upload /var/www/html/osticket`

Step 4: Set File Permissions

Allow Apache to manage the osTicket directory.

1. `sudo chown -R www-data:www-data /var/www/html/osticket`
2. `sudo chmod -R 755 /var/www/html/osticket`
3. `sudo cp ost-sampleconfig.php ost-config.php`
4. `sudo chmod 0666 ost-config.php`

Step 5: Create the MySQL Database

Provision the database schema and secure access credentials for osTicket.

1. `sudo mysql -u root -p`

MySQL Commands:

1. `CREATE DATABASE osticket;`
2. `CREATE USER 'osticketuser'@'localhost' IDENTIFIED BY 'StrongPass123!';`
3. `GRANT ALL PRIVILEGES ON osticket.* TO 'osticketuser'@'localhost';`
4. `FLUSH PRIVILEGES;`
5. `EXIT;`

Step 6: Complete Web-Based Installer

Access the installer from your browser and complete initial configuration.

In browser, go to: <http://192.168.68.89/osticket>

Installer Fields:

- Helpdesk Name: DipeshCorp Helpdesk
- Default Email: ithelpdesk@dipeshcorp.onmicrosoft.com
- Admin Name: Dipesh IT
- Admin Email: admin@dipeshcorp.onmicrosoft.com
- Username: dipeshadmin
- Password: Dipesh@1234!!@@##

Database Info:

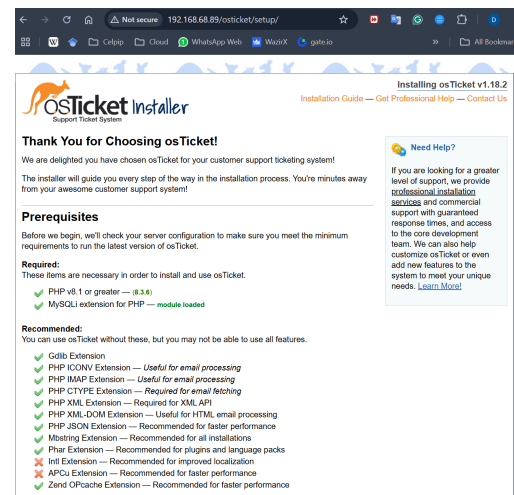
- MySQL Hostname: localhost
- DB Name: osticket
- Username: osticketuser
- Password: Osticketuser@1234!!@@##

Complete install → Delete setup directory when prompted.

```
sudo rm -rf /var/www/html/osticket/setup
```

Step 7: Configure Email Fetching (Exchange Online Integration)

Enable automatic ticket creation by connecting your Exchange Online shared mailbox.



Login to Admin Panel: <http://192.168.68.89/osticket/scp>


Navigate to: Admin Panel → Emails → Email Fetching → Add New Email

Configure:

- Email: ithelpdesk@dipeshcorp.onmicrosoft.com
- Username: ithelpdesk@dipeshcorp.onmicrosoft.com
- Password: (use App Password if MFA is enabled)
- IMAP Server: outlook.office365.com
- Port: 993
- Encryption: IMAP SS
- Fetch Interval: Every 5 minutes

☒ Enable Email Piping: ON

☒ Enable Fetching: ON

 Optional: Create Microsoft 365 App Password if MFA is enabled:

<https://security.microsoft.com>

Step 8: Customize Departments, Topics, and SLAs

Make the helpdesk simulate real company operations.

From Admin Panel:

- Departments:
 - IT Support
 - HR
- Help Topics:
 - Password Reset
 - VPN Issue
 - Hardware Request
- SLA Plans:
 - Standard = 1 day
 - Urgent = 2 hours
 - Critical = 30 minutes

Step 9: Testing

Confirm tickets are auto-generated from Exchange Online mailbox.

Send a test email from Gmail or Outlook to: ithelpdesk@dipeshcorp.onmicrosoft.com

Wait 5–10 minutes → Login to osTicket Admin Panel

✓ Expected:

- Ticket is auto-created
 - Sender shows as external user
 - Email subject becomes ticket title
 - Assigned to IT Department or unassigned queue
-

Part 2: Microsoft Exchange Online Integration with osTicket (OAuth2)

Automatically convert support emails into tickets using secure OAuth-based access to Microsoft 365 shared mailbox: ithelpdesk@dipeshcorp.onmicrosoft.com. This setup replaces traditional IMAP login with a secure, token-based modern authentication, fully aligned with Microsoft's OAuth2 security model.

Actions Completed:

Step 1: Enable IMAP and SMTP in Microsoft 365

Go to:

Microsoft 365 Admin Center → Settings → Org settings → Services → Enable: IMAP & SMTP

Then go to:

Exchange Admin Center: <https://admin.exchange.microsoft.com> → Settings → Mail flow → Enable IMAP4 globally

✓ Done.

Step 2: Register Azure AD App

Portal: <https://portal.azure.com> → Azure Active Directory → App Registrations

Click New Registration

Name: osTicketMailBridge

Account Type: Single tenant

Redirect URI: <https://localhost> (placeholder)

Click Register.

Save: Application (client) ID

Directory (tenant) ID

Step 3: Create Client Secret

Go to: App → Certificates & Secrets → New client secret

Description: osTicketSecret

Expiry: 12 or 24 months

→ Copy secret value securely (you cannot retrieve it again)

Step 4: API Permissions

Go to: API Permissions → Add a permission → Microsoft Graph → Delegated permissions

Add:

IMAP.AccessAsUser.All

SMTP.Send

offline_access

email

openid

Click Add → Click Grant Admin Consent for dipeshcorp

Step 5: Assign Shared Mailbox Access to Licensed User

Shared mailbox (ithelpdesk@dipeshcorp) cannot authenticate directly. Assign a licensed user (e.g., helpdeskadmin@dipeshcorp) full access.

Connect via Exchange Online PowerShell: Add-MailboxPermission -Identity

ithelpdesk@dipeshcorp.onmicrosoft.com -User helpdeskadmin@dipeshcorp.onmicrosoft.com

-AccessRights FullAccess -InheritanceType All

Add-RecipientPermission -Identity ithelpdesk@dipeshcorp.onmicrosoft.com -Trustee

helpdeskadmin@dipeshcorp.onmicrosoft.com -AccessRights SendAs

Step 6: Generate OAuth Access Token

Create a Python script locally (requires pip install requests):

token-generator.py:

```
1. import requests
```

```
2.     tenant_id = "YOUR_TENANT_ID"
3.     client_id = "YOUR_CLIENT_ID"
4.     client_secret = "YOUR_CLIENT_SECRET"
5.     username = "helpdeskadmin@dipeshcorp.onmicrosoft.com"
6.     password = "YOUR_PASSWORD"
7.     url = f"https://login.microsoftonline.com/{tenant_id}/oauth2/v2.0/token"
8.     payload = {
9.         'grant_type': 'password',
10.        'client_id': client_id,
11.        'client_secret': client_secret,
12.        'scope': 'https://outlook.office365.com/default',
13.        'username': username,
14.        'password': password
15.    }
16.     headers = {'Content-Type': 'application/x-www-form-urlencoded'}
17.     response = requests.post(url, data=payload, headers=headers)
18.     print(response.status_code)
19.     print(response.json())
```

→ Copy the access_token for the next step

Configure osTicket for OAuth-based IMAP/SMTP

Step 7: Add Email Account in osTicket

Go to: Admin Panel → Email → Add New Email

Enter:

Email: ithelpdesk@dipeshcorp.onmicrosoft.com

Hostname: outlook.office365.com

Port: 993

Encryption: IMAP + SSL

Auth Method: OAuth2

Username: helpdeskadmin@dipeshcorp.onmicrosoft.com

OAuth Token: (paste token from Python script)

Save and Test.

Step 8: Configure SMTP (Outgoing)

Admin Panel → Email → Outgoing → Add SMTP

SMTP Server: smtp.office365.com

Port: 587

Encryption: TLS

Auth: OAuth2

Username: helpdeskadmin@dipeshcorp.onmicrosoft.com

OAuth Token: (same as IMAP)

Step 9: Test Ticket Creation

Send email to ithelpdesk@dipeshcorp.onmicrosoft.com

Check-in osTicket → Tickets

✓ Ticket auto-generated within 1–3 minutes

Part 3: Real-World Helpdesk Workflow Configuration in osTicket

Set up professional ticketing structure including help topics, SLA plans, routing filters, dynamic forms, and auto-responses to simulate a real IT service desk.

Step 1: Define Help Topics

Admin Panel → Manage → Help Topics → Add New

Topic Name > Internal Note

Password Reset > AD/Entra/Email unlock

Printer Issues > Jam, offline, toner

Software Install > Zoom, Adobe, Office 365

Device Onboarding > Autopilot or new laptop setup

VPN or Wi-Fi Issues > Zscaler, RADIUS, connectivity

BitLocker Recovery > Recovery key or TPM issues

Apple Device Support > macOS, Jamf, FileVault

Email Issues > OWA, Outlook sync

Teams/SharePoint Issues > Access or file errors

Step 2: Setup SLA Plans

Admin Panel → Manage → SLA Plans → Add New

SLA Plan	Grace Period	Schedule
Critical - 1hr	1 Hour	24x7
High - 4hr	4 Hours	Business Hours
Normal - 8hr	8 Hours	Business Hours
Low - 24hr	24 Hours	Business Hours

Step 3: Create Departments

Admin Panel → Staff → Departments → Add

Name	Email	Manager
IT Support	ithelpdesk@dipeshcorp.onmicrosoft.com	Dipesh
HR Support	hr@dipeshcorp.onmicrosoft.com	HR Lead
Finance	finance@dipeshcorp.onmicrosoft.com	Finance Manager

Step 4: Add Agents (Technicians)

Admin Panel → Staff → Add New Staff

Name	Username	Email	Dept	Role
Dipesh IT	dipesh	dipesh@dipeshcorp.onmicrosoft.com	IT Support	Admin
John Smith	jsmith	john.smith@dipeshcorp.com	IT Support	Agent

Step 5: Create Ticket Filters

Admin Panel → Manage → Ticket Filters → Add

Example: VIP Ticket Routing

Match Condition: Email = ceo@dipeshcorp.com

Actions:

Set SLA: Critical - 1hr

Set Priority: High

Assign to: Dipesh

Internal Note: VIP Request – escalate immediately

Step 6: Add Dynamic Ticket Forms

Admin Panel → Manage → Forms → Ticket Details → Add Field

Field Name	Type	Required	Variable
Device Type	Dropdown	Yes	device
Operating System	Dropdown	Yes	os
BitLocker Enabled?	Optional	Yes/No	bitlockerenabled
User Location Short Text	Optional	location	

Step 7: Customize Auto-Responses

Admin Panel → Emails → Auto-Response Templates → Edit

New Ticket Auto-Reply:

“Thanks for contacting DipeshCorp IT. Ticket #[ID] received. We’ll respond shortly.”

Ticket Assigned:

“Your ticket #[ID] has been assigned to our support team.”

Ticket Closed:

“Your issue #[ID] has been resolved. Please reply if it reoccurs.”

Step 8: Simulate Full Ticket Lifecycle

Send test email to: ithelpdesk@dipeshcorp.onmicrosoft.com

Subject: “My Outlook not syncing”

1. osTicket auto-creates ticket
2. Help Topic = Email Issues
3. SLA = Normal – 8hr
4. Assigned to Dipesh
5. You respond → user receives email
6. Close ticket → user receives closure message