# 🎯 CYPHER Deployment Guide - Your Specific Environment

## 📊 **Your Current AWS Environment**

### **✅ Discovered Configuration:**

* **AWS Region**: us-east-1
* **Domain**: rasdash.dev.com (Route53 hosted zone configured)
* **S3 Deployment Bucket**: cypher-deployment
* **Deployment Package**: cypher-deployment-latest.zip (8.2 MB)
* **Node.js Version**: v20.16.0 (will be installed)
* **Current EC2**: i-04a41343a3f51559a (m5.large, running, IP: 34.230.172.229)

### **📁 Available S3 Buckets:**

* cypher-deployment ← **Your deployment bucket**
* rasdash-deployments
* rasdash-document-repo
* ras-dashboard-daily-backup

## 🚀 **Quick Deployment (Customized for Your Environment)**

### **Option 1: Super Quick Automated Deployment**

# Download the deployment files to your Windows Server desktop  
# Right-click deploy-cypher-iis.bat → "Run as administrator"  
# Press Enter for defaults or provide your specific values:  
  
S3 Bucket: cypher-deployment (default)  
S3 Key: cypher-deployment-latest.zip (default)  
Domain: rasdash.dev.com (default)  
RDS Endpoint: [Your RDS endpoint]  
Database Name: [Your database name]  
Database Username: [Your username]  
Database Password: [Your password]

### **Option 2: PowerShell with Your Defaults**

# Run as Administrator  
.\Deploy-CYPHER-IIS.ps1 `  
 -S3Bucket "cypher-deployment" `  
 -S3Key "cypher-deployment-latest.zip" `  
 -Domain "rasdash.dev.com" `  
 -RDSEndpoint "YOUR-RDS-ENDPOINT" `  
 -DBName "YOUR-DB-NAME" `  
 -DBUser "YOUR-DB-USER" `  
 -DBPassword "YOUR-DB-PASSWORD"

## 🏗️ **What Will Be Installed/Configured**

### **Software Stack:**

* **IIS** with all required features
* **Node.js v20.16.0** (matching your environment)
* **IISNode** for Node.js integration with IIS
* **Git** for version control
* **AWS CLI** (already configured in your environment)

### **Application Architecture:**

Internet → IIS (Port 80) → React Client (Static Files)  
 ↓  
 → /api → IISNode → Node.js API (Port 3001)  
 ↓  
 → PostgreSQL RDS

### **Domain Configuration:**

* **Primary Domain**: http://rasdash.dev.com
* **API Endpoint**: http://rasdash.dev.com/api
* **Health Check**: http://rasdash.dev.com/api/health

## 🔧 **Your Environment-Specific Configuration**

### **Environment Variables (.env)**

NODE\_ENV=production  
PORT=3001  
  
# Database Configuration (you'll provide these)  
DATABASE\_URL=postgresql://[USER]:[PASS]@[RDS-ENDPOINT]:5432/[DB-NAME]  
DB\_HOST=[YOUR-RDS-ENDPOINT]  
DB\_PORT=5432  
DB\_NAME=[YOUR-DATABASE-NAME]  
DB\_USER=[YOUR-USERNAME]  
DB\_PASSWORD=[YOUR-PASSWORD]  
  
# JWT Configuration  
JWT\_SECRET=[AUTO-GENERATED-UUID]  
JWT\_EXPIRES\_IN=24h  
  
# CORS Configuration  
CORS\_ORIGIN=http://rasdash.dev.com  
  
# Rate Limiting  
RATE\_LIMIT\_WINDOW\_MS=900000  
RATE\_LIMIT\_MAX\_REQUESTS=100

### **IIS Site Configuration:**

* **Site Name**: CypherClient
* **App Pool**: CypherAppPool
* **Client Path**: C:\inetpub\wwwroot\cypher\client\dist
* **API Path**: C:\inetpub\wwwroot\cypher\api
* **Domain Binding**: rasdash.dev.com:80

## 📋 **Pre-Deployment Checklist**

### **Before You Start:**

* **Windows Server 2019** EC2 instance launched (t3.large recommended)
* **RDP access** configured (port 3389 open to your IP)
* **Security groups** configured:
  + Port 80 (HTTP): 0.0.0.0/0
  + Port 443 (HTTPS): 0.0.0.0/0 (for future SSL)
  + Port 3389 (RDP): Your IP only
* **RDS PostgreSQL** database created and accessible
* **RDS Security Group** allows access from EC2 (port 5432)
* **Route53** DNS pointing rasdash.dev.com to your EC2 public IP

### **Information You’ll Need:**

* **RDS Endpoint**: your-rds-instance.xxxxxxxxx.us-east-1.rds.amazonaws.com
* **Database Name**: Your PostgreSQL database name
* **Database Username**: Your PostgreSQL username
* **Database Password**: Your PostgreSQL password

## 🎯 **Step-by-Step Deployment**

### **Step 1: Launch Windows Server 2019**

# In AWS Console:  
# 1. EC2 → Launch Instance  
# 2. AMI: Windows Server 2019 Base  
# 3. Instance Type: t3.large (2 vCPU, 8 GB RAM)  
# 4. Security Group: HTTP (80), HTTPS (443), RDP (3389)  
# 5. Storage: 30 GB GP3

### **Step 2: Connect via RDP**

# Get Windows password using your key pair  
# Connect: Administrator@[EC2-PUBLIC-IP]

### **Step 3: Download Deployment Files**

# Download these files to the desktop:  
# - deploy-cypher-iis.bat  
# - Deploy-CYPHER-IIS.ps1  
# - WINDOWS-SERVER-DEPLOYMENT-GUIDE.md  
# - YOUR-ENVIRONMENT-DEPLOYMENT.md (this file)

### **Step 4: Run Deployment**

# Right-click deploy-cypher-iis.bat  
# Select "Run as administrator"  
# Follow the prompts (defaults are pre-filled)

### **Step 5: Verify Deployment**

# Check health endpoints:  
# http://rasdash.dev.com/api/health  
# http://rasdash.dev.com

## 🔍 **Post-Deployment Verification**

### **Health Checks:**

# API Health Check  
Invoke-WebRequest -Uri "http://rasdash.dev.com/api/health"  
  
# Client Check   
Invoke-WebRequest -Uri "http://rasdash.dev.com"  
  
# Database Connection Test  
# (Check application logs for database connectivity)

### **Service Status:**

# IIS Status  
Get-Service W3SVC  
  
# Application Pool Status  
Get-WebAppPoolState -Name "CypherAppPool"  
  
# Check IIS Sites  
Get-Website

## 🚨 **Troubleshooting Your Environment**

### **Common Issues:**

#### **Domain Not Resolving**

# Check DNS resolution  
nslookup rasdash.dev.com  
  
# Update Route53 if needed  
aws route53 change-resource-record-sets --hosted-zone-id Z07201002RI5R8QT9OIF7 --change-batch file://dns-change.json

#### **S3 Access Issues**

# Test S3 access  
aws s3 ls s3://cypher-deployment/  
  
# Download deployment package manually  
aws s3 cp s3://cypher-deployment/cypher-deployment-latest.zip C:\temp\

#### **RDS Connection Issues**

# Test RDS connectivity  
Test-NetConnection -ComputerName [YOUR-RDS-ENDPOINT] -Port 5432  
  
# Check security groups allow EC2 → RDS access

## 📊 **Monitoring Commands**

# Application Status  
C:\Scripts\Monitor-Cypher.ps1  
  
# IIS Logs  
Get-Content "C:\inetpub\logs\LogFiles\W3SVC1\\*.log" | Select-Object -Last 20  
  
# Application Logs  
Get-EventLog -LogName Application -Source "\*IIS\*" -Newest 10  
  
# Restart Services  
iisreset  
Restart-WebAppPool -Name "CypherAppPool"

## 🎉 **Success Indicators**

✅ **IIS Running**: Get-Service W3SVC shows “Running”  
✅ **App Pool Active**: Get-WebAppPoolState -Name "CypherAppPool" shows “Started”  
✅ **Domain Resolves**: nslookup rasdash.dev.com returns your EC2 IP  
✅ **API Healthy**: http://rasdash.dev.com/api/health returns 200  
✅ **Client Loading**: http://rasdash.dev.com shows your React app  
✅ **Database Connected**: No database errors in Event Viewer

## 🔗 **Your Application URLs**

* **Main Application**: http://rasdash.dev.com
* **API Health Check**: http://rasdash.dev.com/api/health
* **API Base URL**: http://rasdash.dev.com/api

**🎯 This deployment guide is customized specifically for your AWS environment with pre-configured defaults for quick deployment!**