# 🚀 CYPHER Windows Server 2019 Quick Deployment Reference

## 📋 **Prerequisites Checklist**

* Windows Server 2019 EC2 instance (t3.large) launched
* Connected via RDP as Administrator
* Your zipped code uploaded to S3 bucket
* RDS PostgreSQL database created and accessible
* Security groups configured (ports 80, 443, 3389, 3001)

## ⚡ **Super Quick Deployment (5 Minutes)**

### **Option 1: Automated Batch Script**

1. **Download files** to your Windows Server desktop
2. **Right-click** deploy-cypher-iis.bat → **“Run as administrator”**
3. **Follow prompts** to enter your S3 and database details
4. **Wait 10-15 minutes** for automatic installation and configuration
5. **Done!** Your app will be running on IIS

### **Option 2: PowerShell Script**

# Run as Administrator  
.\Deploy-CYPHER-IIS.ps1 -S3Bucket "your-bucket" -S3Key "your-code.zip" -RDSEndpoint "your-rds-endpoint" -DBName "your-db" -DBUser "your-user" -DBPassword "your-password"

## 🔧 **Manual Step-by-Step (If Needed)**

### **1. Install Software**

# Install IIS  
Enable-WindowsOptionalFeature -Online -FeatureName IIS-WebServerRole,IIS-WebServer,IIS-CommonHttpFeatures,IIS-HttpErrors,IIS-HttpLogging,IIS-RequestFiltering,IIS-StaticContent,IIS-DefaultDocument,IIS-DirectoryBrowsing,IIS-ASPNET45  
  
# Install Node.js (download from nodejs.org)  
# Install IISNode (download from GitHub)  
# Install Git and AWS CLI

### **2. Download Code**

aws s3 cp s3://your-bucket/your-code.zip C:\temp\code.zip  
Expand-Archive C:\temp\code.zip C:\inetpub\wwwroot\cypher

### **3. Configure Environment**

Create C:\inetpub\wwwroot\cypher\api\.env:

NODE\_ENV=production  
PORT=3001  
DATABASE\_URL=postgresql://user:pass@rds-endpoint:5432/dbname  
DB\_HOST=your-rds-endpoint  
DB\_PORT=5432  
DB\_NAME=your-database  
DB\_USER=your-username  
DB\_PASSWORD=your-password  
JWT\_SECRET=your-secret-key  
CORS\_ORIGIN=http://your-domain.com

### **4. Install Dependencies**

cd C:\inetpub\wwwroot\cypher\api  
npm install --production  
  
cd C:\inetpub\wwwroot\cypher\client  
npm install  
npm run build

### **5. Configure IIS**

Import-Module WebAdministration  
Remove-Website -Name "Default Web Site"  
New-WebAppPool -Name "CypherAppPool"  
New-Website -Name "CypherClient" -Port 80 -PhysicalPath "C:\inetpub\wwwroot\cypher\client\dist" -ApplicationPool "CypherAppPool"  
New-WebApplication -Site "CypherClient" -Name "api" -PhysicalPath "C:\inetpub\wwwroot\cypher\api" -ApplicationPool "CypherAppPool"

### **6. Create web.config for API**

Create C:\inetpub\wwwroot\cypher\api\web.config with IISNode configuration.

### **7. Start Services**

iisreset

## 🏥 **Health Checks**

### **Test API**

Invoke-WebRequest -Uri "http://localhost/api/health"

### **Test Client**

Invoke-WebRequest -Uri "http://localhost"

## 📊 **Monitoring Commands**

# Check IIS status  
Get-Service W3SVC  
  
# Check application pool  
Get-WebAppPoolState -Name "CypherAppPool"  
  
# Restart IIS  
iisreset  
  
# Restart application pool  
Restart-WebAppPool -Name "CypherAppPool"  
  
# View logs  
Get-EventLog -LogName Application -Source "IIS\*" -Newest 10

## 🔗 **Important File Locations**

| Component | Location |
| --- | --- |
| **Application Root** | C:\inetpub\wwwroot\cypher |
| **API Code** | C:\inetpub\wwwroot\cypher\api |
| **Client Build** | C:\inetpub\wwwroot\cypher\client\dist |
| **Environment Config** | C:\inetpub\wwwroot\cypher\api\.env |
| **IIS Logs** | C:\inetpub\logs\LogFiles\W3SVC1\ |
| **Monitoring Script** | C:\Scripts\Monitor-Cypher.ps1 |

## 🚨 **Troubleshooting**

### **API Not Responding**

1. Check if server.js exists in API directory
2. Verify web.config is properly configured
3. Check Windows Event Viewer for errors
4. Restart application pool: Restart-WebAppPool -Name "CypherAppPool"

### **Database Connection Issues**

1. Verify RDS security group allows EC2 access (port 5432)
2. Test connection: Test-NetConnection -ComputerName your-rds-endpoint -Port 5432
3. Check .env file for correct credentials

### **Client Not Loading**

1. Ensure npm run build completed successfully
2. Check if dist folder exists in client directory
3. Verify IIS site points to correct path

### **Port Conflicts**

1. Check if port 80 is available: netstat -an | findstr :80
2. Stop conflicting services if needed

## 🎯 **Success Indicators**

✅ **IIS Service Running**: Get-Service W3SVC shows “Running”  
✅ **App Pool Active**: Get-WebAppPoolState -Name "CypherAppPool" shows “Started”  
✅ **API Health Check**: http://localhost/api/health returns 200  
✅ **Client Loading**: http://localhost shows your React app  
✅ **Database Connected**: No database errors in logs

## 📞 **Quick Commands Reference**

# Full deployment (automated)  
.\deploy-cypher-iis.bat  
  
# Manual PowerShell deployment  
.\Deploy-CYPHER-IIS.ps1  
  
# Check application status  
C:\Scripts\Monitor-Cypher.ps1  
  
# Restart everything  
iisreset  
  
# View recent logs  
Get-EventLog -LogName Application -Newest 20 | Where-Object {$\_.Source -like "\*IIS\*"}

**🎉 That’s it! Your CYPHER application should now be running on Windows Server 2019 with IIS, connected to your PostgreSQL RDS database!**