A Standard operating procedure (SOP)

Technical Glitches

Doc: Version: 1.2

Document Classification: Internal

Document Control

Document Name	A Standard Operating Procedures technical glitches
Abstract	This document describes the Standard Operating Procedures at Besseggen Infotech LLP.
Security Classification	Internal
Location	SECTOR-94, NOIDA, GAUTAM BUDH NAGAR-201301

Authorization		
Document Owner	Reviewed by	Authorised by
IT Team	Head – IT	Head – IT

Amendment Log				
Version	Modification Date	Section	A/M/D	Brief description of change
1.1	10 APR 2022	ALL	A	Final
1.2	20 APR 2022	5,6,9	M	Reviewed

Distribution list

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

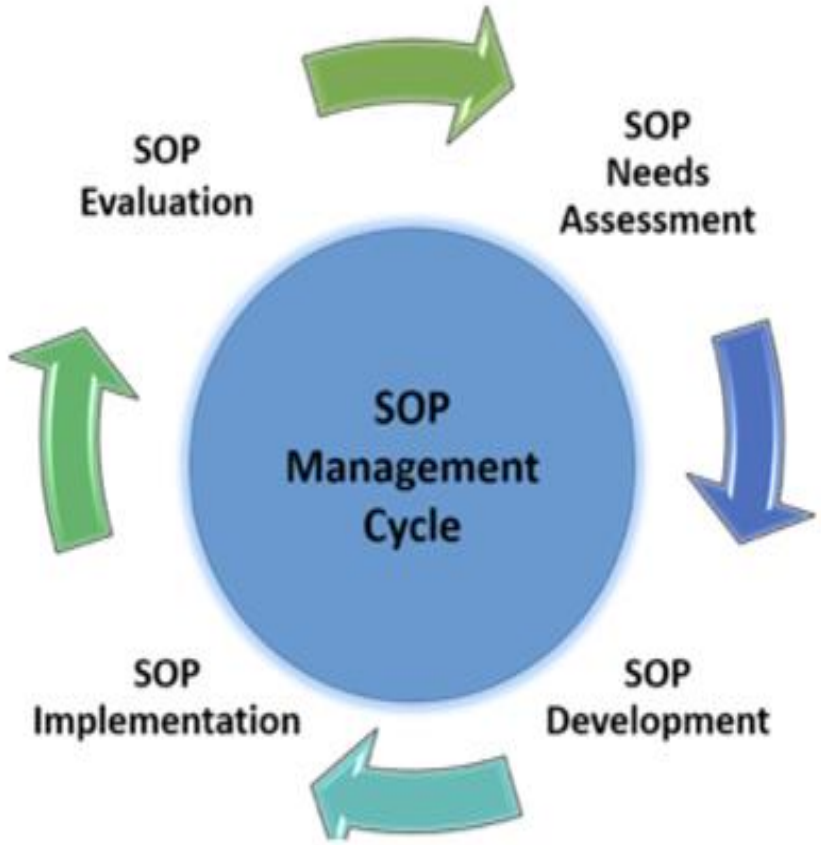
Chief Information Security Officer (CISO)
Auditors (Internal & External)
All users,committee at Besseggen Infotech LLP.

TABLE OF CONTENTS

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

Two types of Standard Operating Procedures:

- Technical
- Management



Standard Operating Procedures Lifecycle

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

1. Preface

This SOP is a written document composed of step-by-step instructions used to complete a Routine operational task. Organisations of all types use SOPs to achieve efficiency, uniform performance, quality control, and regulatory compliance.

Put simply, standard operating procedures make business tasks easier for workers to complete. They indicate what a complex task entails, how it should be approached, and what to do in the event of unusual circumstances.

Technical SOPs detail how to perform and complete tasks. They are often in the form of a repeating work order, a preventative maintenance work order, or an inspection.

Management SOPs detail how all other SOPs are created, updated, distributed, and overseen. This may sound silly, but companies often need SOPs to manage their SOPs. Essentially, management SOPs outline the processes and procedures to define, document, and implement standard operating procedures.

This also means that management SOPs need to be checked and reviewed as often as technical SOPs. They can provide data on meeting safety and inspection standards and help manage the regular cycle of writing, approving, and revising the SOPs in use. Standard operating procedures' documentation is solid proof of quality assurance plans in action.

2. Process

- **Standard operating procedures** communicate across all levels and team members of an organisation. They involve both business owners and IT employees as per Role. SOPs can be organised by department, manager, function, and/or asset. However, an easy way to think about SOPs is to categorise them as technical SOPs or management SOPs.

- In the event of Technical Glitches First approach is a backup / Fallback is Implemented. A Separate manual Prepared for Each Asset for its

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

functionality and operations.

- Connectivity to Exchange is Dual Mode with Auto fallback on Secondary Links.
- Connectivity to our Main Offices to (NSE) Data Centres is a Dual lease line Point to Point.
- IT Persons Role and Privilege defined (Refer Our Policy)
- IT Staff All Procedures Explained Assigned, staff Trained to handle All Technology / IT Equipments
- Critical Devices Routers, Firewalls running in an active Mode.
- In the case of alternate takeover failure Server Routine backup and Standby hardware is In Place to Restore on adverse events.
- Any Technical queries / Complaints Handled Basis on Nature of Complaints and Flaws /errors /Disruption, Escalate further to Senior Members of team
- Easy to distribute Excel Sheets ,PDF , Cloud Stored checklists are available for IT Management auditors and inspectors.
- Digital dashboards provide information about job performance and time-on-task (Under Constructions)
- Processes are uninterrupted and are completed on schedule (Refer TO Do checkList)
- Operations are performed properly and consistently.
- Procedures are in compliance with company quality standards and Regulations.
- Employees are kept up-to-date and trained on new procedures.
- Tech Trends and anomalies can be monitored and improved.

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

3. Streamline Both Types of Standard Operating Procedure

Implemented technical and management SOPs through a Paper & digital solution such as Google Sheets. Our cloud-based platform allows Staff to operate with the assurance that all processes are available, consistent, and repeatable.

- We Ensure employees are trained to complete and execute the SOPs
- We Monitor employee performance on SOPs
- Review, update, and revise SOPs as necessary
- Adapt to changing safety, compliance, and quality-control regulations

4. SOP Technical Assets -Networking

For business operations internet is a Necessity

- The Internet is Airtel 300 mbps with a Pool of 1 Global Public Ip's Range 122.180.242.49
- Secondary Internet is Microscan 4 mbps with a Pool of 1 Global Public Ip's Range 103.29.156.66
- To secure Internet Usage Implemented one Firewall Appliances Sonicwall for Internal Usage.
- For Nse Data Centre connectivity we have two P2P Leased lines: Airtel 20 mbps (Noida) & Tata 10 mbps(Mumbai) (No internet Allowed).A Separate network is Designed.
- Dual Cisco Router Configured to Reach Data centre Primary Secondary Failover Mode.
- Data Centre servers Are Stand Alone Mode ,Critical Servers are In Active Active Mode also Arranged Standby Sufficient hardware in Colo.

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

5. A Basic Step by Step technical Information to deal with Technical Glitches

Firewall Appliances :

- Firewall Running in a ILLB (Load balance)
- Access to It Persons Is Shared as per privileged management Policy

Network Lan Subnets & Switches Router :
(Reference docs is Delhi office Inventory)

Colo Local	192.168.10.0/255
Backoffice	192.168.1.0/255

Colo Subnets :

(reference docs is Colo Inventory)

- Cisco SG350 Series Switches In Local Lan & Colo Lan (few Auto Failover)
- Cisco 1900 Series Routers In Local & Colo Lan (Auto Failover)(Refer Live and backup Config)

Network & IP Management :
(Refer Asset inventory)

- Network Scanning done Weekly
- Tools used Wireshark
- Control and Shut unwanted Ports & Access
- Antivirus Scanning done weekly
- Patches Upon Proper assessment

VPNs & Firewall :

Appliance	Lan IP	Wan IP	ISP	Document	Mode

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

Local User	192.168.1.1/255	103.29.156.66	Micro scan		Self
Local User	192.168.1.2/255	122.180.242.49	Airtel		Self

COLO P2P Leased Lines :

- Airtel 20 mbps Noida Office to Colo Rack AN21.
- Tata 10 mbps Mumbai Data Center to Colo Rack AN21.
- One terminate on Colo Location
- One lines Terminated On Cisco 1900 Series Router (Refer Network diagram)

VPN Clients :NA

- We do Install Antivirus and Software firewall On.
- Access to enterprises Resources On Role Base (custom access).
- No Privilege Access to clients.
- Copy Paste Data Carry Dis-Allowed.

6. Standard Troubleshooting Steps

Step 1. Identify the problem.

- Break large problems down into smaller problems.
- Consider scope; who or what is affected?
- Gather details about the issue; ask users, view logs.
- Determine whether anything has changed.
- Duplicate the problem.

Step 2. Research.

- Refer to past help desk tickets.
- Search through private or public knowledge bases.

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

- Ask friends or colleagues.
- Internet search.

Step 3. Establish a theory of probable cause.

- Eliminate the simple and obvious possible causes.
- Consider factors that can indirectly cause problems.

Step 4. Test the theory.

- Change and test only one potential solution at a time.Determine the root cause of the issue.
- Escalate the issue to a professional if necessary.

Step 5. Establish a plan of action.

- Prepare a specific method to implement the solution.
- Test the plan in an isolated sandboxed environment.
- Notify other users if the solution could possibly affect them.
- Escalate the issue to a professional if necessary.

Step 6. Implement or escalate.

- Back up configurations and data first.
- If the problem is complex, monitor implementation progress.

Step 7. Verify functionality.

- Ensure the solution has solved the original problem.
- Ensure new problems have not been introduced.
- Consult a subject-matter expert if needed.
- Configure preventative measures if appropriate.

Step 8. Document the solution.

- Document the problem and steps taken in the solution.
- Update old documentation with new knowledge.

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

7. IT troubleshooting

Computers:

- **Solvable common computer problems**

You can solve common problems by recognizing symptoms and implementing solutions. Typical problems you'll run into include no power, physical damage, failed boot, application failure to load and peripherals that don't function as they should. Let's take a look at some of these issues.

- **Won't start up normally**

If the computer won't start up, think about it like a detective would. What has changed? Did you install any new hardware or software? Has the computer been moved, such that some cables might have come loose? Did the OS restart itself after installing an update?

Occasionally after an OS update, the computer might start up badly (that is, slowly or with errors). Sometimes you can fix that by simply rebooting. If that doesn't help and you're using a Windows client operating system, try using the System Restore feature to revert to a previous day's restore point.

If the OS won't start at all, you might see a prompt offering to boot into a recovery or troubleshooting mode. Do that, if it's offered. If it's not, try booting from the operating system's removable installation media, if you have it, and choosing the Repair option to enter the Windows Recovery Environment (RE). You can also get there in Windows 10 through the Settings app (Update & Security > Recovery > Advanced Startup > Restart Now).

- **A certain app won't install or run**

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

Problems with a specific application are often because of hardware incompatibility, especially with the display adapter. The latest games often require specific, high-powered display adapters with the latest driver versions. The application's installation program should check your hardware and let you know whether there are any problems. If it doesn't and you experience problems after starting the application, check online for any known incompatibilities between that application and certain hardware. Try updating your video card (display adapter) driver by downloading the latest driver version from the adapter manufacturer's website.

Next, look at the application manufacturer's website to see whether there is a patch or update available for download. If you can't find patches for or information about problems that match what you're experiencing, it's probably a glitch in your own system, such as a minor incompatibility between the application, the OS and some piece of hardware. Try uninstalling and reinstalling the application; this fixes the problem more often than you might think.

Still no luck? Check to see what version of Windows the application requires. If it's designed for an older Windows version, see whether there's a newer version of the software available. If not, try using Compatibility Mode to see if you can get it to run better by emulating an earlier Windows version. To use the Program Compatibility Troubleshooter, right-click the shortcut for running the application (or its executable file) and choose Troubleshoot compatibility. Click Try recommended settings to let Windows try to guess the right settings. You can also manually troubleshoot compatibility from theCompatibility tab in the program's Properties box, choosing a specific older Windows version to emulate.

- **Apps run but sometimes freeze**

Today's operating systems, including those for mobile devices, are designed to run many processes at once. The processes are scheduled to consume processor time such that it appears many apps are running simultaneously.

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

But, these software applications occasionally misbehave; they freeze, and you can't close them using the normal methods. In this case, there are ways to force them to exit:

- **Windows.** Press ctrl+alt+del to open the Task Manager; from the list of running processes you can right-click the misbehaving app and choose End task to kill the process.
- **macOS.** Choose Force Quit from the Apple menu.
- **Linux.** Issue the ps command to view process identifiers (PIDs) assigned by the Linux kernel to running processes. Given the PID, the process can be terminated using this: kill -9 <PID>; -9 is the SIGKILL signal that can terminate misbehaving processes.
- **Android-based smartphone.** Open the Settings app, choose Apps, select the app from the list, and tap the Force Stop button.
- **iOS 11.x.** Press the left edge of the iPhone screen, move your finger to the centre of the screen, and swipe the app card up and off the screen.

Network Switches:

- Check First Hope Switch Powered on
- Check first hope Network Pc/ Server Access /Ping Status
- Check Led’s Status
- Check Portion of Network Affected or whole network
- Isolate Network
- Narrow down Problematic Network
- Replace Faulty devices
- Check Access ACL Policies Configuration
- Refer Logs / Docs / Manual
- Do RCA

Routers:

- Check First Hope Router Powered on
- Check first hope Network Pc/ Server Access / Ping Status
- Check Led’s Status , Is It Accessible
- Check Portion of Network Affected or whole network
- Verify configuration / Wan Lan / Policies / ACL

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

- Narrow down Problematic Network
- Replace Faulty devices
- Refer Logs / Docs / Manual
- Do RCA

FAQ:

- What if Tata P2P 10 Mbps Lease goes down Airtel Lease take Over – Primary Already
- What if Airtel 20 Mbps P2P Down Tata Line take Over -Secondary
- What if Airtel Internet Lease Goes Down Micromax Internet Lease take Over
- What if MicromaxInternet Lease Goes Down Airtel ILL Take over
- What If VPN Appliance fail NA
- What if Cisco Primary Router Fails Secondary Router Must take Over
- What If Cisco Secondary Router Fails Primary Working
- What If a Lan Switch fails Shift important IT Asset Plugged Ones to other Switch & replace the Switch
- What if a Colo Lan Switch within a Rack fails Other rack Runs From other Mode Of connectivity & replace the Switch
- What are Alternate mode to Reach Colo Data Centre Mumbai DC branch Is Access point (Find details with admin)
- What if A main Server fails in Colo Data Centre Alternate Server take over / shift Clients / Replace /troubleshoot & Restore
- What if Network Choke down Find Root Cause & isolate network Core From edge network Shut Problematic devices ,Assess recent activity other errors As Per IT Person capability to deal with
- What if UPS Fails Secondary ups Take Over (Active Active mode) for other ups a Standby Available
- What other Detail Docs / Manual Available to Support this SOP Assets Inventory,Network Diagram,Illustrated Network and connected location,ISP Escalation Matrix, Product Manuals,Refer Specific service Manuals Whatever Available

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

8. Using a Troubleshooting Methodology for More Efficient IT Support

Troubleshooting is a critical skill for IT professionals. There's no getting around it—a vast amount of our time is spent figuring out why something that should work, doesn't. A great deal of our ability to diagnose and solve computer and network-related issues comes from experience. However, there is also a framework that guides us toward finding the answers we need.

This methodology has been constructed over the years based on experience, and it serves as a guide for newer members of the IT community when problem solving.

A. Identify the Problem

Identification is often the easiest step. It may be accomplished via an inbound phone call from a user, a help desk ticket, an email message, a log file entry or any number of other sources. It is not at all uncommon for users to alert you to the problem.

It's important to recognize that the root cause of specific issues is not always apparent. For example, a failed login attempt might seem to indicate a username or password problem, when instead the real issue may be a lack of network connectivity that prevents the authentication information from being checked against a remote server.

As troubleshooters, we want to be very careful to ensure we have identified the root cause of the error, mis-configuration or service interruption before making any changes.

Specific steps here may include:

- Gathering information from log files and error messages / Indication
- Questioning users and IT Person Role on that Zone
- Identifying symptoms
- Determining recent changes
- Narrowing the scope of the problem

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

B. Establish a Theory of Probable Cause

This stage may require significant research on your part. Vendor documentation, your organisation's own documentation and a good old- fashioned Google search may all be required to provide the basis for your theory.

Specific steps here may include:

- Questioning the obvious
- Considering multiple approaches, including top-to-bottom or bottom-to- top for layered technologies (such as networks)

One of the main issues that I've observed with newer troubleshooters is failing to question the obvious. In my classes, I rephrase this as "start simple and work toward the complex." Yes, I am aware that operating systems, networks and cloud deployments are all very complex. However, that does not mean that your issue is complex. I have found over the years that careful note-taking is important at this point. Your notes can include data copied from websites, web URLs, suggestions from your team members, etc.

C. Establish a Plan of Action and Implement the Solution

If you believe you know the root cause of the troubleshooting issue, you can now plan how to address it. Here are some reasons to plan ahead before blindly jumping into a course of action:

- Some fixes require reboots or other more significant forms of downtime
- You may need to download software, patches, drivers or entire operating system files before proceeding
- Your change management procedures may require you to test modifications to a system's configuration in a staging environment before implementing the fix in production
- You may need to document a series of complex steps, commands and scripts
- You may need to back up data that might be put at risk during the recovery
- You may need approval from other IT staff members before making changes

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

Once you've completed this stage, you're now ready to do whatever it is you believe you need to do to solve the problem. These steps may include:

- Run your Test Phase
- Update your systems or software
- Edit configuration files
- Change firewall settings

Make sure that you have a rollback plan in place in case the fix you're attempting does not address the issue. You must be able to reverse your settings to at least get back to where you began.
In some cases, implementing the proposed fix may be quicker than the research phases that preceded it. Those research phases are essential, however, to make sure you're addressing the real issue and to minimise downtime.

D. Verify Full System Functionality and Implement Preventive Measures

I once observed a failure at this very stage of troubleshooting. The support person in question was called to investigate a printer that wasn't working. When he arrived, he noticed the printer was unplugged. He plugged it back in, grumbled about users not understanding computers, and walked away. What he failed to realise, however, was that the printer was jammed and that the users had unplugged it while attempting to fix the jam. The tech walked away without verifying functionality.

When possible, have the users that rely on the system test functionality for you. They are the ones that really know how the system is supposed to act and they can ensure that it responds to their specific requirements.

Depending on the problem, you may need to apply the fix to multiple servers or other devices. For example, if you've discovered a problem with a device driver on a server, you may need to update the drivers on several servers that rely on the same device.

Preventive Maintenance :

- Cleaning of hardware Depend On condition Assessment
- Clean up temp Files
- Cable dressing , Devices / Hardware Condition Alerts / alarms

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

- Health Monitor ManuallyDowntime Only weekend and nature of work
- Upon Completion Make Sure up and ready for Production (Refer Preventive Maintenance docs)

9. Document Findings

Documentation is a pet peeve of mine. Documenting your troubleshooting steps, changes, updates, theories and research could all be useful in the future when a similar problem arises (or when the same problem turns out not to have been fixed after all).

Another reason to keep good documentation as you go through the entire methodology is to communicate to others what you have tried so far.

Keep It Simple.

This troubleshooting methodology is just a guide, however. Each network environment is unique and as you gain experience in that environment, you'll be able to predict the likely causes of issues.
If I could pass on one bit of wisdom to future support staff members, it would be the tidbit above regarding starting simple.

- Is it plugged in?
- Is it on?
- Did you restart it?
- Did you Escalated
- Look for SLA if any

Being deliberate about troubleshooting methodology can make you much more consistent and efficient at finding and resolving system and network issues. We strongly encourage staff to formalise such a methodology for our support staff.

ISP Tech Information :

ISP	Bandwidth	Service Type	Role	Deployed at	Deployed at
Airtel	**20 Mbps**	**P2P**	**Colo Connectivity**	**Noida**	**Nse**

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)

Tata	**10Mbps**	**SKR DC**	**Colo Connectivity**	**Mumbai**	**NSE**
Airtel	**300 Mbps**	**ILL**	**Internet**	**Noida**	

Escalation Matrix :

Level 1: Compliance Officer/IT Member

- Responsible for handling compliance/IT-related issues and queries.
- Ensures adherence to regulatory guidelines and internal policies and IT security protocols.

Level 2: Partner/Management Representative

- Responsible for overseeing compliance and IT activities.
- Addresses escalated issues related to compliance or IT.
- Approves exceptions or overrides within defined limits.
- Engages with regulatory authorities or IT specialists when necessary.

10. References:

None

ADDRESS: OFFICE NO 1115, ASTRALIS SUPERNOVA PLOT NO 3, FLOOR NO 11, SECTOR 94 NOIDA GAUTAM BUDH NAGAR-201301, UTTAR PRADESH, INDIA, 201301, LLP IDENTIFICATION NUMBER: AAM-6165 (2018-19)